LYRIC DICTION

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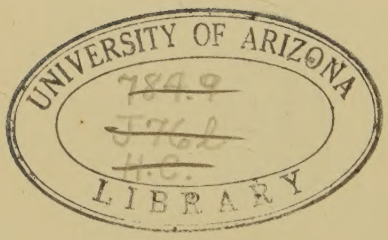

M-M

"ORPHEUS' LUTE WAS STRUNG WITH POETS' SINEWS"

Two Gentlemen of Verona.

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FOREWORD

CERTAIN incidents referred to in the following pages as "recent" having taken place two years or more ago, it is necessary to state that the publication of this work has been twice unavoidably postponed since the manuscript was prepared for the press.

In the mean time, the following interesting and important testimony to the practical value of the principle upon which the writer's work is based has been given in the report of an interview with Miss Helen Keller, which appeared in the New York *World* for September 15th. "When I spoke," writes the interviewer, "she placed her first finger lightly against my lips, her second finger against the side of my nostril, and her thumb against my throat just above the Adam's apple."

By comparing this statement with *Formula D*, page 265, for harmonizing the voice-chord on the primary vowels, the reader will note that this position of the fingers enables Miss Keller not only to feel the movements of the organs of articulation, but to take into her grasp, so to speak, the vibrations which the present writer terms *the three-fold cord of the voice.* Contact of the thumb with the throat conveys to her the vibrations of the *fundamental tone* in the larynx; through the finger resting against the lips she receives those of the *vowel tones* aroused in the mouth, while the finger against the nostril enables her to feel the pulsations of the *resonant tone* in the face-mask. Variations in the proportion and balance of these vibrations convey to her, through a highly developed tactile-motor sensibility, subtleties of language which deaf-mutes possessing the sense of sight are unable to "read" in the movements of the organs of articulation. For example, if the finger against the nostril reports a perceptible increase in the vibrations of the

resonant tone during the emission of certain vowels, she is thus able to identify the *double resonances* peculiar to the French nasal vowels, so called, which are due to changes in the position of the invisible veil of the palate.

If so much can be accomplished by intelligent exercise of the sense of movement alone, how limitless must be the possibilities of attainment for the singer who combines a highly developed kinesthetic faculty with a normal sense of pitch and a cultivated musical faculty.

It is with the hope of stimulating students of voice culture, speakers as well as singers, to such normal development of all their powers that the present volume is offered to the public. Chapters I to VIII, inclusive, are given practically in the form in which they were originally cast for class-lectures; the writer's aim being to set forth as clearly and fully as possible the principles upon which the technical work of the final chapters is based. While the casual reader may find certain details a trifle tedious, it is hoped that

the fault may prove a virtue to the more earnest student and teacher.

If this volume proves of sufficient interest to the vocal profession to secure their co-operation with teachers of diction in encouraging a more serious and scientific study of the art of speech, the writer will feel amply repaid for the years of labor, research, and experiment devoted to the work. Thus,

"... each for the joy of working, and each in his separate star,
Shall draw the Thing as he sees It for the God of Things as They Are."

LONDON, *November, 1912.*

PREFACE

EVERY art is made up of a family of contributory arts. The art of singing, for example, includes, among others in its composition, the arts of musical and temperamental expression; of the judicious employment of sensibility and dramatic and poetic feeling; of tone-color, of phrasing, and of diction. Of these, in England at least, the art of diction is the Cinderella of the family.

In France, Germany, and Italy there are certain more or less hard-and-fast rules governing the expression of each language. The right way to speak the words has been thought out and formulated, and has been confirmed by tradition, and in case of dispute or misapprehension reference can be made to

This Preface was contributed by Madame Melba from the text of a lecture on English diction delivered at the Guildhall School of Music, London.

irrefutable authorities, and the point at issue placed beyond doubt. Now in England, as far as I know, such felicitous conditions do not exist. The result is nothing short of lamentable. No two singers employ the same form; and it is doubtful if any two responsible teachers agree in regard to the pronunciation of every English word in song. To whom is the young singer, anxious for the right way and eager to excel, to refer on a nice point in diction, or even in respect to any of the most obvious stumbling-blocks the language presents?

The opinion is largely held that English is not a musical language, or at least not a language which lends itself felicitously to expression in music. I rather think that, for a time, I held that opinion myself. My maturer judgment and experience tell me that I was wrong; that although the English language lends itself to expression in music less readily than the Italian, it is, in that respect at least, equal to the French and certainly superior to the German; and that the reason why I held that opinion for a time, and

why others hold it still, is that the art of English diction, whatever it may have been in other days of which we have no direct knowledge, has been during our own time in a very uncultivated condition. It is true that there are exceptional instances to the contrary, and that occasionally we hear our native language spoken in song with distinction and clearness; but it is, alas! equally true that our ears are too frequently tortured by mispronunciations and verbal obscurities, and at times to such an extent that it is difficult to decide in which particular language the singer is delivering his message.

After all, what are we singers but the silver-voiced messengers of the poet and the musician? That is our call—that is our mission—and it would be well for us to keep it constantly and earnestly in our minds. What we should strive for is to attain as nearly to perfection as possible in the delivery of the message, sacrificing neither the musician for the poet nor the poet for the musician. If we sing a false tone or mispronounce one word, we are apt to awaken the critical faculty

which, consciously or unconsciously, exists in every audience; to create a spirit of unrest and destroy the burden of our message.

I think it will be generally admitted as an ideal that the English language should be sung as it should be spoken, with just sufficient added distinctness, or one might even use the word "exaggeration," to counteract the obscuring effect of the singer's voice and the piano or other musical accompaniment. You have observed that I have said "as the English language *should be* spoken." And I am sure that the thought has occurred to you that the majority of people, singers and non-singers, do not habitually speak the language with justice, distinction, and grace. How many persons do you know who could read aloud a verse of poetry, or of fine prose, in a manner to include the qualities mentioned? Not many, I fear. And yet I have a strong feeling that that is what the singer should be able to do before he or she enters seriously into the training of the singing voice. In a word, if verbal diction were early ac-

quired vocal diction would not be so serious a stumbling-block to our singers.

> She dwelt among the untrodden ways
> Beside the springs of Dove,—
> A maid whom there were none to praise
> And very few to love.

Those words of Wordsworth are very simple, very beautiful, and surely very singable, and yet I suppose I am not the only person who has heard them sadly mutilated in song. I have heard the word "Dove" given as "Doive," the word "whom" as "oom," and the word "love"—a particularly long-suffering word in song, by the way—given as "loive."

Consider for a moment the word "garden." Speak it aloud to yourself. It is a simple word of two syllables. It is too simple a word, apparently, for a great many singers—a determined attack must be made on the unoffending *r*, and the result is a word of three syllables which sounds anything but English.

If you wish to sing beautifully—and you

all do—you must love music; and the nearer you get to music the more you will love it. If you wish to sing your native language beautifully—and you all should—you must love your native language; and the nearer you get to it the more you will love it. Aim high. Let your ambition be ever on tiptoe. Fill your mind with Shakespeare's "Sonnets," Keats's "Ode to a Grecian Urn," Shelley's "Ode to a Skylark," Matthew Arnold's "Forsaken Merman," Swinburne's "Spring Song in Atalanta," and many other of the poetic ecstasies with which your beautiful language is so rich. Let them become the delightful companions of what might otherwise be sometimes lonely hours, learn to speak them aloud with distinction and understanding, and so enable yourselves to bring to your singing the added glory of a perfect diction.

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INTRODUCTION

THERE is, perhaps, no quality in which the art of the majority of singers and actors of the present day is so signally lacking as that of *distinction.*

This may be attributed partly, in the case of the singer at least, to the general fermentation of more or less contradictory and conflicting ideas, theories, and methods of vocal culture brought about by the revelations of physical science in regard to the production of the human voice.

It is also undoubtedly due, however, and to an even greater extent, to the decline of what a musical critic in the London *Times* has recently characterized as "*a lofty conception of the dignity of technique*, producing, through the persistence of personality, that

curiosa felicitas without which no work of art can make good its claim to the highest place."

The liberty is here taken to italicize the first phrase of this apt and felicitous definition of *distinction*, with wooing intent toward the many gifted young artists in whom "persistence of personality" seems in a fair way to extinguish all regard for the dignity of that branch of artistic technique known as *diction*, or verbal purity in speaking and singing.

The writer is, of course, aware that English dictionaries do not yet admit such a definition of the word diction, the term having been pre-empted by our *literati* as a synonym for verbal *style* or "the choice of words" before the Anglo-Saxon race attained sufficient musical taste and development to realize any need of the word in its original sense, as the French use it. Since, as Mr. Brander Matthews has well said in regard to spelling, "dictionaries do not decide but record usage merely," it is simply a question of time when they must admit the true meaning of the term according to its derivation, from the

Latin *dicere*, to speak. That it is already so understood throughout the musical world generally, Madame Melba's use of it in the Preface kindly contributed to this volume testifies. Meantime, as the English language affords no other term to express verbal purity in speaking and singing, the present writer is obliged to follow usage instead of the dictionaries.

The term "verbal purity," as here used, must not be taken to signify mere distinctness of articulation alone. It includes also a clear and melodious enunciation, and a correct pronunciation; the term pronunciation including, in turn, not merely correct vowel and consonant sounds, but the proper syllabic accentuation or stress of the voice.

A most musical and beautiful enunciation may be heard in connection with a defective, even slovenly, articulation. A clear and precise articulation may be combined with rasping and unmelodious speech-tones. An illiterate pronunciation may accompany either or both. On the other hand, a public speaker may have a correct and even meticulous pronunciation with indistinct articulation and a

voice devoid of resonance or carrying power and beauty of tone.

Again, a vocal artist may have the most perfect diction in speaking and yet be unable to maintain verbal purity in singing without a sacrifice of tonal beauty. If the processes of articulation interfere with the adjustment of the resonators demanded for the singer's method of voice-production, the result is an inevitable interruption of the vibrations or movement of the sound waves, causing a loss of *timbre* or musical quality.

These phenomena of vocal sound and the means by which such interference may be avoided will be discussed at length in the following chapters. Suffice it to say here that the root of the matter lies in the difference in the character of the movement of the voice in speech and song. Speech-tones rise and fall with a gliding movement through *enharmonic* intervals or degrees of sound so delicate as to be almost imperceptible to the ear of the casual listener. In singing, the voice springs from one pitch level to another through the wider intervals of the musical scale. (See Chapter IV.)

INTRODUCTION

There can be no doubt in the mind of any student of the science of speech that the greatest obstacle to the work of the vocal instructor is the fact that the average pupil presents himself for singing-lessons with processes of articulation co-ordinated only to the small vowel-chamber, and the gliding, "concrete" movement of the voice used in ordinary conversation. The effort to adapt these restricted speech-motions and positions to the enlarged vowel-chamber and the bolder "discrete" movement of the voice used in singing, without proper training of the *intrinsic* muscles of the tongue, causes an unnatural strain on the *extrinsic* muscles attaching that organ to the larynx, the pharynx, and the soft palate. The inevitable result is a partial inhibition of the action of the vocal cords in producing the fundamental tone as well as interference with the natural adjustment of the resonators in which the vowel resonances and harmonic tones are generated and harmonized into the complete voice-chord. (See Chapter V.)

Is it any wonder that vocal teachers are criti-

cized for the length of time it takes to cultivate the voice; or that one so often hears even the most eminent among them unjustly accused of "ruining" scores of voices for every singer they "produce"? How is it possible for a method which "produces" one voice successfully to "ruin" another? It would be just as reasonable to accuse the professor of mathematics whose class produces one senior wrangler of ruining the career of those who fail to pass their examinations! The fact is that the average vocal student expects his singing-teacher to do for him work corresponding in a sense to that of university, college, high school, and in some cases of kindergarten training. It is to be hoped that the day is not far distant when such students will realize that to present themselves for instruction in the art of singing without proper training in the *technique of speech* and in *lyric diction* is equivalent to application for admission to a university without preparation in algebra and geometry, as well as arithmetic.

Of the neglected work of co-ordinating the processes of articulation to the *discrete* or

leaping movement of the voice in song, the writer has for twelve years past labored and spoken and written under the title given to the present volume, Lyric Diction, or *the preparation of the word for singing*. As full and sufficient authority for the use of this distinctive term she refers the reader to the definition given by Dr. Murray in the new Oxford Dictionary to the word "lyric," "*suited to the lyre: meant to be sung.*"

It is certain that this difficult and delicate art of maintaining the integrity of the word in singing without any loss of tonal beauty was well known to the early Italians. It is probable that the Greeks knew it even better, according to their standard of tonal beauty. That the early Italian masters at least also knew it to be the scientific basis of the vocal art is evident from the first article of their vocal creed, as recorded by Pacchiarotti, "*Chi sa parlare e respirare sa cantare.*" [1]

Unfortunately, like many of the wise and simple sayings of old, this sane, logical, and

[1] He who knows how to speak and how to breathe knows how to sing.

philosophical adage has undergone strange interpretations and transformations, until, in our modern musical art, it has come to be read backward like the Chinese alphabet. "If the tone is correctly posed the words can be articulated without any difficulty whatever," said a well-known vocal instructor to the writer.

According to this we would have to infer that inarticulate opera is due, not to neglect of the study of diction, but to the fact that the voices of the majority of the vocal artists of to-day are not properly posed!

Again, a popular vocal instructor in London to whom one of the writer's pupils put this query replied that "it is all a question of breath-control, for the breath directs the movements of the tongue as well as the larynx!"

Such, it seems, are some of the generally accepted versions—or *reversions*—of the basic precept of the Italian vocal tradition at the present day among the Anglo-Saxon race. Is it any wonder that the English language has no term for verbal purity in singing? Instead of studying the art of speech as the

basis of the vocal art it has become the fashion to take singing-lessons in order to learn how to speak! If the vocal method happens to be one that does not force the voice, the result should be of some benefit to the speaker in improving the quality of his speech-*tones*. It is the singer who pays the penalty incurred by this reversion or perversion of a natural physiological process. Inarticulate diction is the least deplorable result to his art, since, as we shall see later, it also involves the loss of the very tonal beauty to which the word is sacrificed, and in many instances of the singing voice itself.

Perhaps the most misleading, because the subtlest, of all the perversions of the Pacchiarotti proverb is the instruction, so often given to the vocal student, to "speak naturally" in singing. Certainly it is the most preposterous, since it is exactly equivalent to telling him to walk naturally while running. In walking the body is propelled by continuous contact with the earth. In running it is hurled through the air, the ground being used only as a spring-board for muscular

action and impetus. There is just the same difference between the gliding movements of the voice in normal speech and its bolder leaps and flights in song.

This *vocal curve* is secured by increasing the arc of the tone *without interrupting the process of articulation*. This, as we shall see later, must be accomplished by increasing the force of the breath-pressure upon the sympathetic vibrations in the head and face mask without forcing the lower stream of the divided breath in its passage through the vowel-chamber.

Herein precisely lies the difference between *lyric diction* and mere declamation or song-speech; the line of demarcation between true musical art in singing and the art of the vaudeville-singer. The latter is, indeed, singing only to the degree that the man who walks rapidly is running. He has simply increased the stride of his articulation and the volume of the fundamental tone. He has not proportionately increased the arc of the tone, hence his voice lacks the resultant floating and soaring quality characteristic of the perfect

vocal note, as well as the musical *timbre* due to proper proportion and balance of *all* its vibrations.

For this reason, to the degree that the singer adopts the declamatory, "natural" style of speech in his diction, to that degree he necessarily sacrifices tonal beauty. Even the actor, orator, or public reader who wishes to secure musical speech-tones and a "carrying" voice must increase the strength of the sympathetic vibrations of the voice in proportion to the increase in the volume of the fundamental tone, in order to maintain correct co-ordination of the words and tones, in projecting the same.

On the other hand, if the singer neglects to strengthen the articulatory process for the increased stride of his vowel, trusting the voice entirely to the lift and poise of the tones by the breath, the result will be scarcely less disastrous. Not only will his art be inarticulate, and of a hit-or-miss quality, beautiful in patches only, but his voice will be constantly subject to the dangers which beset a poorly balanced flying-machine.

Again, in ordinary speech, *especially in America*, as Dr. Scripture truly says in his treatise on "American Speech Curves," "not only must we say that every individual sound changes from beginning to end, but we must assert that each one develops out of the preceding sound and into the following one. In speech there is a flow of sound which cannot be truthfully represented by spelling: there are no well-defined limits between neighboring sounds . . ." Here precisely is the root of the difficulty which blurs the diction of many of our vocal artists, reduces that of the average singer to an inarticulate *smear* of words, and brings upon our noble and sonorous language the reproach of being unmusical, and impossible to sing artistically. (See Chapter V.)

"Art is art because it is not nature," says Goethe. The true artist, be he poet, painter, musician, or actor, knows that to the degree in which his work actually reproduces instead of representing or suggesting nature, just to that degree does it cease to be true art. No one really supposes that the originals of

Shakespeare's historic characters conversed habitually in blank verse and occasionally in rhymed meters. Nor, when some literary "futurist" shall translate his plays into the realistic vernacular of the twenty-first century will the lovers of poetry who may survive the gospel of realism recognize the result as the art of Shakespeare.

To no class of artists is Goethe's maxim so vital as to the singer, actor, orator, or reader, because of the fleeting and evanescent character of the medium of their art. Like the words and tones in which it is expressed, the vocal art is but a breath, and, like the phenomenon of sound itself, is complete only in the consciousness of the listener. The poet and the musician may rewrite, the painter and sculptor retouch their creations into greater perfection, but the winged word once spoken or sung can never be recalled or altered on its swift flight to the goal of the listener's ear.

Where artistic ideals exist in any form the impulse of self-expression is spontaneous, but the expression itself will be artistic only to the

degree that it is intelligently controlled. A man may speak and gesticulate without absolute perfection in ordinary conversation, but if he repeats these words and gestures in the same manner, and on the same scale, before the footlights of a theater his art will be about as effective as the efforts of a *chauffeur* to steer an aeroplane as he does a motor-car. Each utterance and movement must, of course, *appear* to be natural, but this effect of naturalness in any art can be attained and maintained only through intelligent *artistic restraint.* It is true that through nervous "reflexes" set up by his own deliberate simulations of grief an actor may, for example, move himself to tears. In proportion as he loses control of the expression of the emotion thus aroused, however, he ceases to move his audience.

The technique of the actor who expresses himself in normal speech is a simple problem compared to that of the singer who must adapt the processes of articulation to the increased vowel-stride, the bolder pitch-movements, and the measured rhythm of a musical

score. For this reason articulate tonal beauty in lyric or dramatic form, combining as it does the art of the actor with that of the musician, represents the highest attainment in artistry. In order to secure intelligent control of this dual process the singer must harmonize a trinity of forces, *physical*, *physiological*, and *psychological*.

First, we learn from the physicist the principle of resonance governing the production of musical sounds. (See Note VII (a).) This law regulates all musical sound-waves, whether aroused by a bell, a steam-whistle, instruments of wood or brass, or the voices of animals and man. He will find the principle threefold in action: the *volume* of the sound being regulated by the amplitude of the vibrations or movement of the sound-waves; its *pitch* by the rate or relative rapidity of the movement; and its *quality* by the form of the waves or vibrations. From the physiologist we learn how the vibrations of the human voice may be modified, and the resulting sound-waves beautified and varied by regulating the movements and adjustments of the

vocal apparatus. Finally, psychological research reveals the fact that these physiological modifications can be regulated only to the degree that they are brought under conscious, intelligent control, direct or indirect, through the exercise of the *kinesthetic* faculty, or sense of muscular movement, by means of which mind controls the movements of the body.

Here, then, is our point of departure for the correlation of the trinity of laws upon which the dual art of song is based. Since it is Mind that sings, that which is sung must be, in its essence, a mental concept. Singing, therefore, is the expression of a state of consciousness consisting of intelligent thought and the emotions aroused by it. (See Chapter II.)

Nothing is more confusing and more misleading to the vocal student, however, than the glib stock utterances that "*tone* is a mental concept" and singing a "purely mental *process*." The mental concept furnished by the poet's thoughts and the composer's emotional commentary upon these thoughts must, of course, be reflected in the singer's concept

of the character and quality of the words and tones in which the song is embodied. The *process* by means of which he articulates the thought into words and the notes into music is, however, as purely physiological as walking or any other action of the body. It is, in fact, simply the co-ordination of three bodily functions—*respiration*, *phonation*, and *articulation*.

Of these, the act of phonation, the making of sounds or tone-production, so called, is entirely "subconscious" and imitative in man as in bird, hence *the least intelligent*, and consequently the least "mental" part of the process. Therefore, the student who begins his technical work with the imitation of tones, as such, commences at the one and only point from which he has absolutely no direct, intelligent control of his complex, difficult, and delicate task.

"Music," says Dr. Aiken, "is the field in which the beauties of the voice are utilized, and in which opportunities are offered for its perfection in the art of expression, but it has no more power to cultivate the voice than a

great violinist would have to turn a bad instrument into a good one by constantly playing upon it. Whereas, one knows quite well that a good mechanic might make the most beautiful violin ever heard by really understanding its principles without ever being able to play a note. The same is quite true of the voice, and it would be possible to train up excellent vocal instruments without any reference to music at all."[1]

When one considers the tremendous field of vocal execution to be "cultivated" according to the equally tempered musical scale before the student is prepared to interpret with ease and skill the simplest concert programme, one hesitates to limit the work of the singing-teacher to "the art of expression" alone. If, however, by the word *cultivation* is meant the process known as "placing the voice," the present writer's experience in placing the vowels for singers as well as public speakers leaves her in perfect accord with the views of this eminent authority on matters phonological.

[1] *The Voice.* W. A. Aiken. Longmans & Co., London.

INTRODUCTION

Twelve years ago, with a view to improving the quality of her work as a teacher of diction, the writer turned her attention to the discoveries and revelations of modern science in regard to the vibrations of the human voice, patiently and carefully testing the practical value to the work of her own pupils of the principles thus demonstrated. Her sole and modest ambition was to formulate, on a scientific basis, a reliable and effective method for the study of diction, by means of which speakers might cultivate melodious speech-tones as well as correct articulation and enunciation, and which would, at the same time, enable the singers among her pupils to maintain verbal purity in singing without interfering with approved methods of vocal instruction.

This work demanded, of course, the application of the principles of resonance in both cases, which, in turn, led to the inevitable demonstration of the fact, also remarked by Dr. Aiken, that "in the great majority of cases the difficulties with which a singer has to contend are connected with the speech

organs and not with the vocal cords." And, further, that "there can be no doubt that if our speech organs were properly trained in the first instance, in our youth, the whole process of teaching singing would be simplified."

Even when this has been done, however, the vowels properly "placed" and the sung word made articulate, the problem of maintaining tonal beauty with verbal purity remains unsolved until the complete voice-chord has been secured on each vowel. Such perfect balance of words and music in singing can be gained only through proper proportion and adjustment of all the vibrations producing the composite vocal tones. Not until the full quota of vibrations in the face mask producing the *resonant tone* have been added to the vibrations of the fundamental tone and the vowel tones is the voice-chord made complete by the proper reinforcement of the *overtones*, so called; since, as we shall see later, such reinforcement of these upper partial, harmonic tones can be obtained only by means of perfect adjustment of the three primary tones of the voice. (See Chapter VI.)

This process, while it furnishes the only scientific *basis* for artistic voice culture, must not be confused with the art of singing itself. On the contrary, it is of vital importance, as we shall see later, that the singer's vowels should be placed and the voice-chord harmonized on each by the natural musical scale, and not by the equally tempered intervals of the piano scale.

"Our present singers, unfortunately, seldom learn to take just intervals," says Helmholtz, "because they are accustomed from the first to sing to the accompaniment of instruments which are tuned in equal temperament, hence with imperfect consonances." (See Note I.) "It is only such singers as have a delicate musical feeling of their own who find out the correct result, *which is no longer taught them.*" And again, "Where are our singers to learn just intonation, and make their ears sensitive to perfect chords, if they are from the first taught to sing to the pianoforte?"[1]

This is one of the questions that answers

[1] *Sensations of Tone*, translated by Ellis, pages 207, 325. (The italics are ours.)

itself. The inference is, at least, perfectly clear, that the only way to gain either a just intonation or a correct ear is by learning to sing, or at least to intone, the vowels *without* a piano! This is a perfectly simple process—*provided the student has first gained control of the vowel resonances through the sense of muscular movement in the organs of articulation.* When this has been done the singer can adapt his voice to the piano or organ with even greater ease than the violinist adapts the natural scale of his instrument to the equally tempered scale of the modern orchestra.

Especially fortunate is the vocal student who has an opportunity to practise with the violin in learning to sing. Others less fortunate do well to study carefully the true and exquisite intonations of artists such as Madame Sembrich—who were trained in childhood to play the voice-like instruments of the violin class. Not only is the scale of such instruments a true musical scale, but the technique of the violin-player resembles in a striking degree that of the singer's dual

art. To the "bowing" of the breath by the muscles used in artistic breathing proper control of the organs of articulation adds exactly the same effect secured by correct *fingering* in the work of the violin-player.

Furthermore, the veil of the palate, *when left free*, follows automatically the action of the tongue in regulating the adjustment of the resonators above the larynx. Hence, through control of the intrinsic muscles of that organ in the enlargement of the speech movements for the increased stride of the word in singing, the artist can maintain whatever adjustment is necessary to regulate the proportion and balance of the three primary tones of the voice throughout its entire compass.

As revealed thus from the standpoint of the word, the complex vocal problem resolves itself simply into the difficulty of articulating the vowel tones into the syllables and phrases of intelligible speech *without interrupting the flow of the resonant tone*, the continuous vibrations of which serve to harmonize the differing pitches of the fundamental

tone and the vowel resonance into a perfect unit of vocal sound.

The exercises given for this adjustment of the vibrations of the voice should be used as *diction* work pure and simple, without any musical accompaniment whatever. A set of tuning-forks is sufficient to give the proper key-note for intoning and harmonizing the vowels. If the result, when properly used (as singers and vocal instructors among the writer's pupils have testified), is to "place the voice" it is because "tone-placing," *per se*, is a chimera—the great vocal illusion.

This chimera seems to have misled the singer since the very birth of the vocal art. Among the Aristotelian Problems (xix. 10) we find the query, "Why, although the human voice is the most pleasing of musical sounds, singing without words, as in humming or whistling, is not more agreeable than the flute or the lyre?" The modern artist may smile at the naïveté of the ancient philosopher in referring to humming or whistling as "singing" in any sense; but does he himself fully realize that there is no

such thing as "singing without words"? Has he considered the fact that it is impossible to make any vocal tone whatever without some vowel? This being the case, it is manifest that the only means of placing the voice is to place the vowels correctly. When placed, this vowel resonance forms the basis of the word, whether that word be whispered, spoken, intoned, "cantillated," or *sung*.

In short, the demonstration of the phonologists in regard to the whispered vowels, like the revelations made by the physicists in recording the vibrations of the speaking and singing voice, and the results of the experiments of the physiologist and the psychologist in regard to control of the same simply prove the soundness of the Pacchiarotti proverb in its original form and sequence. In thus restoring the word to its high office, science sets its seal upon the dignity of the technique of speech and establishes the study of diction as the true basis of the art of singing

By the same token the reader will recognize the value of this work in harmonizing the

vowels as a preparation for acting, public speaking, and reading, or even for the cultivation of a melodious and agreeable speaking-voice; since beauty of tone, whether it be the subtly modulated chromatics of speech or the bolder musical intervals of song, depends on the proportion and adjustment of the various vibrations which make the human voice the most complex, as it is the most beautiful, of all musical instruments.

The greatest obstacle which the writer has encountered in the work of securing a resonant tone in the speaking and singing voice by thus harmonizing the vowels is the vague idea which obtains among students of voice-culture in regard to the quality of resonance. The majority seem to cherish the delusion that any tone will become resonant if sung loud enough and held long enough! Others interpret it as a *nasal* quality. Some even confuse it with *tremolo* of the voice. Many who have the ears to detect the difference between that mere wabble of the vocal note and the true vibrancy of a resonant tone make the mistake of trying to secure the

effect of the latter by the very tension of the muscles of the diaphragm or pharynx which inevitably results either in a tremolo or throat stiffness. Unfortunately, our standard musical dictionary does not contain either of the words *resonance* and *sonority*. This of itself is sufficient commentary upon the slight attention given to the subject in the English-speaking musical world. At the urgent request of the vocal teachers among her pupils the writer has treated the subject at some length in the following pages.

Suffice it to say here that by resonance, in technical vocal phraseology, is meant the quality added to proper tone by the sympapathetic vibrations of the voice in the resonating chambers above the larynx. By establishing control over these vibrations the singer accomplishes for the sung word something of what the physicist has done for the spoken word through wireless telegraphy. The vowel resonances are freed from the larynx and *floated* by the vibrations of the resonant tone, as the electric waves are liberated from the encaging wire and borne through space by the

mighty and limitless billows of the mysterious medium (or mode?) of transmission which we vaguely term the "ether."

Nor is this the only lesson that the singer may learn from that supreme demonstration of physical science, in regard to the sound-waves of the human voice. As the transmission of a wireless message demands two instruments and two operators, the singer's control of his dual art depends on the co-operation of two of his physical servants, the sense of hearing at the receiving-instrument of the ear and the sense of movement in the muscles used in artistic breathing and articulation.

The writer's aid has been sought by not a few singers threatened with entire loss of a fine voice for reasons corresponding exactly to those that prevented the rescue of so many of the victims of the *Titanic* disaster. When the ear, having run the larynx into danger, sent out its calls for help, the *kinesthetic* faculty responded only through the organs of respiration. Asleep at its post in the organs of articulation, however, it could save but a

remnant of the voice by means of artistic breath-control alone.

In regard to the studies in *vowel harmonies* the writer wishes to make it quite clear that the exercises in Chapter XI are not offered as *vocalizes*. They are to be used solely as part of the work in *lyric diction*, that is, for co-ordinating the processes of articulation to the *discrete* movements peculiar to the voice in singing, and should be given only after the vowels have been properly placed and harmonized.

These musical formulas were first arranged at the request of opera-singers among the writer's pupils, and others preparing for opera who, having had their voices trained by the piano scale, found it difficult to *sing true* to an orchestra without sacrificing the word, or in some cases even by means of that sacrifice.

Since the most arduous and necessary work of the singing-teacher of the present day is to keep the naturally true human voice delicately and accurately out of tune, to accord with the equally tempered scale of the piano,

the writer does not hold herself responsible for the results obtained by teachers who adapt and expand this lyric *diction* work into a method for "tone-production" in the usual way or ways.

For example, many singers, by using an excess of fundamental or vocal cord tone on the open vowel, establish the habit of attacking the vowel with the glottis instead of focusing the vowel vibrations in the front of the mouth by correct action of the tongue, thus interfering with the poise and flow of the *resonant* tone. If they do not ruin the voice entirely they are apt to "flat" or at least to leave that sense of straining upward to reach their tones so painful to the sympathetic *assisting* ear of the listener, instead of lighting on the vowel from above with that soaring, bird-like, vocal curve which characterizes Madame Melba's winged tones. (See Note II, page 326.)

This disagreeable and dangerous habit may be easily and quickly remedied by means of Exercises I and II, pp. 261 and 263, for correct *vowel attack* in singing. But this result

depends entirely on the manner in which the breath and tongue are used. As the writer has found that almost every vocal teacher has a different method of breathing, while few pay any attention at all to the action of the tongue, there are nine chances out of ten that no result or wrong results may be obtained.

Again, while the work has proved to be of great value in restoring strained and overworked voices, the most satisfactory result can be obtained in such cases only by those who give up singing, or regular vocal *practice* at least, until the vowels are placed and harmonized.

However, as the more experienced and accomplished vocal instructors recognize at once the true object and value of the work as merely preparatory and supplementary to their own legitimate art, the writer ventures to try to set forth the method entire as nearly as can be done with the inadequate written word.

With the same intent she ventures to offer the work to the consideration of the vocal artist, whether his discourse be in the simple

vowel music of the poet and dramatist or in the more complicated musical measures of the song-writer, believing that the study of vowel harmonies will be found invaluable for the preservation of the voice, since, as the wisest of all writers has said, "*A threefold cord is not easily broken.*" (See Note III, page 327.)

I

THE NEGLECTED HALF OF SINGING

The tendency of music that is based on harmony is to treat the voice as one of a number of instruments, and accordingly to curtail the use of it as the great source of dramatic and emotional effect. . . . Music becomes an independent creation. It may still be a vehicle of the deepest feeling, but it no longer seeks the aid of language, or reaches its aim through the channels by which language influences the mind of man.—MONRO, *Modes of Ancient Greek Music.*

"IF the third frontal convolution in a bird's brain be stimulated by an electric current the bird begins to sing," says Walleschek, in his treatise on *Primitive Music.* He then proceeds to show that "in the human brain this third frontal convolution is the *speech* center on which our *musical* faculty does not at all depend."

In regard to the musical faculty, *per se,* this may or may not be true—authorities seem about equally divided in opinion on the sub-

ject. It is certainly not the writer's intention to revive here that hoary discussion of the origin of the musical instinct in man. It would be of great interest but of no practical value to know whether, as Darwin held, it was acquired like the song of the bird, "by the male or female progenitors of mankind, for the purpose of charming the opposite sex." Again, it might throw a little more light on the vocal problem if we could be sure that it was developed, according to Spencer's more flattering theory, from the cadences of human speech, for the purpose of varying and enlarging "the commentary of the emotions on the propositions of the intellect." But it seems equally probable, as Walleschek and others maintain, that it arose directly from the mere impulse of rhythmical movement.

In regard to the *vocal* faculty as such, however, the significant biological fact demonstrated concerning this third frontal convolution of the human brain as the speech center offers an interesting field of speculation, since it is manifestly impossible for man

to sing at all without words, or fragments of them.

Even this phase of the subject would lead us too far afield for our present object. We have no record of any nation, savage or civilized, which has not practised the vocal art in some form, however primitive. It may have risen no higher during long ages of intellectual development than the monotonous religious chant of the Hindu Brahmin or the plaintive love-songs of the Orient. It may decline temporarily from the elevated height of English oratorio to the nasal psalm "tunes" of provincial New England; from the stately strains of Palestrina to the alien "rag-time" melodies of *Little Italy*. It may fluctuate, as to-day, among the most musical of civilized races, between the heavenly harmonies of Bach and the tinkle of modern musical comedy; but it is perennial. From the moment man transcends the bounds of mere material consciousness, and as long as his spirit can soar free of the encroaching shades of aging sense-impressions, the stimulating clash of intellect and emotion tends to voice

itself in some form of those fuller cadences of vocal expression which we call singing.

It is sufficient for the singer to know that this unique gift is his, and that of all the arts which may serve to brighten and adorn the somber background of human existence none possesses an appeal at once so intimate, so universal, and so irresistible as the art of singing. This is due, primarily, to the dual character of song. Doubly winged, with speech and music, this subtlest of all the arts affords a medium of expression which includes within the sweep of its pinions the full circle of human thought and emotion.

To this duality of the ideal of their art, however, the majority of singers seem strangely oblivious or indifferent. From the moment the vocal student is first charmed by the dulcet sound of his own singing-voice he is so transported by the sensuous delight of mere tonal expression that he seems to lose all interest in the thought-content of his song. As he becomes more and more absorbed in the fascinating process of increasing this power of emotional expression the words are

often practically eliminated, and with them the poetic idea that inspired the music. As a natural result, the "finished" singer often finds himself before an audience unmoved save to admiration of his vocal *tours de force* and distracted by efforts to follow, with the aid of a printed text, the tragic or pathetic situations which have caused his outbursts of musical emotion.

Nor is it difficult to understand how such a dwarfed and one-sided ideal of the vocal art originated. As practised to-day, the art of singing had its origin among the Italians, who possess a language so intrinsically musical in character, and so simple and normal in its phonetic structure, that singing was almost as natural and spontaneous with them as talking. Furthermore, the musical children of sunny Italy had none of the reluctance to opening the mouth which, according to Milton, causes the inhabitants of less friendly climates to speak through shut teeth and half-closed lips, to the detriment of the voice. Hence they had none of the abnormal habits of enunciation common to people who speak

more complex languages. Indeed, the very fact that they had no subtleties of vowel resonance, no difficulties of articulation to master, seems to have blinded them to the importance of speech processes as the mechanical basis of singing. The most emotional of all civilized people, the Italians, were especially prone to laying overmuch stress upon the tonal values of the voice, a tendency further fostered by their plastic facility of bodily pose, gesture, and facial expression. Content with the sensuous appeal of mere tonal beauty, they erected upon this unstable foundation an exquisite but limited and incomplete art. Take, for example, the "cadenza" and the "trill," those fine flowers of their later opera, in which we have a form of singing from which word and thought have been entirely eliminated, reducing the human voice to the level of a mere musical instrument, such as the flute or violin. To such rivalry it must, save in rare instances, succumb, through the very characteristics that constitute its superiority to all other instruments—the power to express both poetic

thought and the emotion aroused by it in the delicate balance of word-music and tone-music.

Goethe's aphorism that only the poets can drive poetry from the earth may be applied with equal force to singers at that period of the art of song. As an inevitable result, in spite of the sound precepts left by the early Italian masters, the efforts of composers and the brief triumph of Gluck in restoring temporarily the neglected half of the dual art, the scepter of song departed from Italy.

When opera was transplanted to France and Germany, and the effort made to adapt Italian musical forms to languages more complex in structure and texts embodying the involved poetic utterance of more serious and thoughtful races, the inherent inadequacy of the old Italian method for singers of other nationalities was soon revealed. Even in the French lyric drama the art of diction, which had flowered into perfection in France, found itself overshadowed and hampered by the complexities of tonal execution.

With Wagner's music came the supreme

test of the singer's skill, and throughout the development of the German music drama the vocal art has fluttered painfully and uncertainly on unequally developed pinions, voices of the most superb power and vitality alone surviving the strain. Nor was it possible to make the serenely incorrigible and uncompromising seer of Bayreuth the scapegoat for all the vocal sins of the musical world. Voices trained by the Italian method were, with a few exceptions, found scarcely more adequate to the less exacting demands of the simpler German *Lieder*—the most normal of all forms of vocal art—their exquisite balance of word and tone affording a perfect medium for the expression of both thought and emotion. Another Hill Difficulty had arisen in the singer's pathway through the *Wohltemperirtes Klavier* of "father" Bach himself. Wagner knew all that lay beyond, and armed his pilgrims with the only staff by means of which they could climb the steep and narrow way to the vocal Walhalla—the *word.*

By the middle of the nineteenth century dissatisfaction with the uncertain results ob-

tained from methods of voice culture based on the Italian vocal tradition culminated in a general movement toward a reform of those vague and intangible theories. This movement was greatly stimulated by two important events in the field of scientific investigation—the invention of the *laryngoscope* in 1855 by Garcia and the publication, soon afterward, of the discoveries made by Helmholtz (Donders, Wheatstone, Willis, and others) concerning the principles of resonance. For many years it was hoped and believed that the knowledge thus gained of the structure and function of the vocal organs and of the laws governing musical sounds would result in the formulation of a definite, scientific, and reliable method of developing and cultivating the singing-voice by mechanical control of the organs of phonation. It is safe to say that had such a method been possible Manuel Garcia would have formulated and perfected the same during his century of life, most of which was devoted to profound investigation and serious experiment along these lines, for which he was equipped, by in-

heritance as well as attainment, with a knowledge of the art of singing such as no other teacher has ever possessed.

But, alas! instructors in applying the principles set forth by Helmholtz and Garcia fell into the snare which had lured the Italians from the ultimate goal of vocal achievement —considering only the production of tone, *per se,* and treating word-processes as a negligible quantity in singing. According to the theories formulated upon Helmholtz's valuable demonstration of the principle of vowel resonance, the vowels must be treated as mere harmonics of the fundamental tone produced by the vocal cords. In this arbitrary process the vowel must be "accommodated" to the tone—that is, varied according to the pitch of the latter, regardless of the spelling of the words, and thus, of necessity, sacrificing both the word and its meaning, as well as placing an unnatural strain on the vocal cords in making this artificial adjustment.

Concentrating his attention upon the larynx, Garcia practically ignored the action

of the organs of articulation, which, together with the muscles governing the action of the diaphragm in "artistic" breathing, are the only parts of the vocal apparatus that can be brought under control of the conscious will. Fortunately, that great *maestro* made very little, if any, effort in his own teaching to establish conscious control of the larynx and vocal cords on the knowledge of the structure and action of those organs gained from his observations with the laryngoscope, as his pupil and the loyal defender of his art, Mr. Hermann Klein, has recently testified in a London lecture. His followers have not all exercised similar wisdom, however, and with the increase of such methods there has been a steady increase of throat and voice troubles among singers.

This deplorable state of things is readily explained by the fact brought to light by the physiological psychologists, that the larynx and vocal cords are practically devoid of sensory nerves. (See Note V, page 328.) Muscular rigidity is the natural and inevitable result of the effort to control consciously any

part of the muscular mechanism having no nerves of sensation. Hence the result of such methods is the stiff throat and the hard, inflexible tone which makes even the listener's larynx ache in sympathy with so many singers.

Here the *ignis fatuus* of tone-production flits from the laboratory of the physicist and the physiologist to that of the psychologist. As a metaphysical problem, pure and simple, it is set forth by the author of *The Psychology of Singing*.[1] After a "scientific analysis of all systems (of vocal culture), ancient and modern," he declares that "the laws of tone-production deduced from the scientific investigations of the voice do not furnish a satisfactory basis for a method of training voices. . . . Voice culture," he continues, "is generally recognized as entitled to a position among the exact sciences, but something remains to be done before it can assume that position." In conclusion he decides that this "something which remains to be done" is merely to return to the old Italian method of imitation by ear control alone!

[1] The Macmillan Company.

Mr. Taylor's arguments are absolutely sound and his conclusion profoundly scientific, both from a physiological and a psychological standpoint—as regards *fundamental tone*. It is impossible to formulate a scientific practical method of gaining direct control of the organs producing this tone, because the singer has no *conscious* impression of the movements of these organs, such as is felt in the movements of the tongue, lips, jaw, and soft palate. Hence, as Mr. Taylor himself admits in regard to throat stiffness, "even though the singer hears, and indeed feels the effects of the muscular tension, and strives to remedy the fault of production, *the voice still refuses to respond.*"

In short, it is true the results of the sixty years or more of experiment along this line simply go to prove that the reflex-motor mechanism by means of which the *fundamental tone* of the voice is produced is entirely under the control of the sense of hearing and can be educated properly only by the education of the ear. Let the reader note, however, that the psychologist's arguments,

like the experiments of the physical scientist, the empirical methods of the later Italian masters, and the loose deductions of the musical world in general, are all based on the hypothesis that the art of singing is merely the art of making musical sounds as such.

I submit that this is a false premise and leads to contradictory theories and to confusing methods which not only rob the art of singing of half its charm, by practically eliminating the word and its poetic content, but limit the powers of the singer, and often endanger the hygiene of the vocal organs as well.

The art of singing is no more the art of merely imitating sounds as such than the art of painting is the art of imitating colors. Even the color masses of the impressionist depend upon the artist's knowledge of form as well as color. It may indeed be said, with as much accuracy as is to be found in any simile or comparison, that the word bears the same relation to the tone that drawing does to the art of painting. From the technical standpoint the art of singing is *the art of combining speech processes and sustained musical*

tones in such a manner that both word and tone, both thought and emotion, shall retain their full value. The vocalist, whatever his skill in tone-production, is a *singer* only to the degree that he maintains these finer relative values of his dual art, the exquisite poise of word and tone as heard, for example, in the operatic arias of M. Jean de Reszke and the *Lieder* singing of that other incomparable vocal artist, Prof. Johannes Messchaert.

Mere skill in vocalizing depends, to a greater extent than the average singer realizes, on command of speech processes in singing. He may—and often does, alas!—warble through his entire *répertoire* of opera with scarcely an articulate word, by means of a few vowels, which he varies at will according to the pitch of the tone, without regard to the spelling or meaning of the words. Even that feat, however, as well as the resonance of his tones, and to a certain extent the very quality of his voice, depends on his control of the position of his organs of articulation in producing those vowels, for *no complete vocal note can be made without some vowel.* A mu-

sical "humming" *sound* may be produced by reinforcing the fundamental tone with vibrations in the head and face mask, but this inarticulate "hum" is not a complete vocal tone until it has been given articulate vowel character by the addition of the vibrations made in the mouth. In fact, a complete vocal note can be accurately defined only as a sung or spoken vowel consisting of a harmony of different tones, like the sound of a bell; the tone made by the vocal cords merely corresponding to the "tonic" or fundamental sound made by the stroke of the clapper upon the metal. If the reader has watched the process of tuning a bell he knows that three other tones, each differing in pitch, are added to this fundamental note by vibrations in the cavity of the bell through graduations in its size and in the thickness of its walls. (See Note X, page 331.)

Practical study of the principle of vowel resonance shows that the singer's vowels are each a vocal harmony like the chord of the bell, and that each must be "tuned" by regulating the shape and size of the chief resonator

above the vocal cords in which the vowel vibrations are made—the mouth, in fact—and that *this can be done only by correct adjustment of the organs of articulation.* It is clear, therefore, that only through *speech* processes proper can the singer gain complete and reliable command of these vowel harmonies on which the subtler values of his tone work as well as of his diction depend.

As it is exceedingly rare that a bell is cast true in pitch and with its full chord of tones, so only a limited number of great singers are endowed by nature with a perfectly adjusted tone and speech mechanism which gives to such voices as those of Jenny Lind and Patti their "virgin peal."

Much of the great length of time required to train the voice is consumed in groping unconsciously for this control of the process of articulation. Hence, to train the *ear* alone, "to listen and imitate" only, is to neglect one-half—*and not a less important half*—of the art of singing.

That word-processes cannot be perfectly controlled, in the case of adults, through the

sense of hearing alone all so-called "accent," foreign or provincial, is sufficient to prove. A gifted linguist may have a very poor ear for music; and not all musicians are good linguists—many, indeed, speak even their own language with an astoundingly indifferent accent. Again, one who is both musician and linguist may have defective speech processes without being aware of the fact until it results in loss of voice or chronic throat trouble. The writer has just such a case under her instruction at present, one of the most eminent musicians in Europe, also an excellent linguist, who is unable to read aloud or conduct a rehearsal for half an hour without becoming hoarse. He is also a sufferer from chronic laryngitis, which throat specialists confess they are unable to relieve, the entire trouble being the result of his efforts to enunciate words *as musical units, governed by the ear alone, without proper action of the organs of articulation and respiration.*

That this motor-word control, which is as necessary to the singer as finger control to the violinist or pianist, can be readily acquired

by attention to and development of tactile motor sensibility in the organs of articulation is proved beyond question by the fact that deaf-mutes are taught to speak. Not only are the tongue and lips readily controlled through the sense of muscular movement, but the "veil" of the palate—which all singers know to be such an important factor in the adjustment of the resonators for the production of tone—can be partially controlled. While it follows automatically the movements of the tongue in ordinary speech it is provided (*like the sterno-thyroid* muscle, by means of which the throat-chamber may be enlarged) with a sufficient number of *sensory* nerves to enable the singer to become conscious of its movements. Thus, by proper adjustment of the *tongue*, *velum*, and *sterno-thyroid* muscle he is enabled to regulate the force of the vibrations in the throat and head resonators until he has perfect control of the qualities of resonance and sonority, after which the process, like that of articulation, retires from the open field of consciousness to exercise its increased and perfected powers

in the dim regions of subconscious activity. In these facts, so often ignored with such fatal effect to the voice, we have the basis of a perfectly scientific as well as practical method for control of the only "vocal mechanism" that *can* be consciously controlled—the mechanism of speech and of breathing.

"*Each faculty acquires fitness for its function by performing its function; and if its function is performed for it by a substituted agency none of the required adjustments of nature take place, but the nature becomes deformed to fit the artificial arrangements instead of the natural arrangements*," says Herbert Spencer. The singer who fails to develop his *kinesthetic* word control remains, more or less, a victim to just such a "deformed" adjustment of the organs of articulation. As a result the muscles of the larynx and throat are forced to do the work neglected by the weak and indolent tongue, to the detriment of both tone and word, and eventually of the delicate vocal cords as well. At best this "artificial arrangement" will enable him to produce beautiful tones on certain vowels only, and to

maintain the complete *timbre* of the voice on these *only with certain notes of the musical scale.*

Granted that it were artistically desirable, a mere revival of the old method of imitation in voice culture, with the present demand for articulate opera, oratorio, and *Lieder* singing, is impossible. As well try to revive early Spanish politics in the government of South America, for example, as early Italian vocal methods for the music of Wagner, Brahms, Strauss, Debussy, Elgar, MacDowell, and other modern composers. Art never moves with her face to the past, as the so-called pre-Raphaelite movement in modern English painting clearly demonstrated. A renaissance of true *bel canto* art is, however, not only possible, it is inevitable—is indeed already upon us—but it will be a rebirth on a higher plane of vocal art through the union of pure tonal beauty with articulate poetic thought.

This ideal demands, in addition to the musical education of the student and the training of the ear to imitate fundamental tones

correctly, thorough training in the technique of speech and in lyric diction—or *co-ordination of the processes of articulation to the automatic processes of phonation with the discrete movement peculiar to the voice in singing.*

He is a brave pilot who undertakes to steer the frail human voice out of the safe haven of normal speech into the vast and troubled ocean of modern song. Between the Scylla and Charybdis of poetry and music lie the hidden and treacherous reefs of our modern system of harmony with its artificially tempered musical scale. Let him look well to his rudder, THE KINESTHETIC FACULTY. (See Note IV, page 328.)

II

THE SIXTH SENSE, OR KINESTHETIC FACULTY

Je trouvais que de tous les sens, l'œil était le plus superficiel; l'oreille, le plus orgueilleux; l'odorat, le plus voluptueux; le goût, le plus superstitieux et le plus inconstant; le toucher, le plus profond et le plus philosophe.[1]—DIDEROT.

Nous n'avons pas conscience d'une émission de force, mais du mouvement des muscles qui en est le résultat.[2]—HENRI BERGSON.

SPECIALLY dominated as the vocal student is by the demands of that most "arrogant" of all his physical servants, the ear, he may perhaps cavil at the claim made by Diderot for the sense of touch as the most profound and the most philosophical of all the senses. Yet the discerning French phi-

[1] I found that of the senses, the eye is the most superficial; the ear, the most arrogant; smell, the most voluptuous; taste, the most superstitious and fickle; touch, the most profound and the most philosophical.

[2] We are not conscious of the expenditure of force, but of the resulting muscular movements.

losopher might have stated the case even more strongly. He might have said, with equal truth, that touch is the *only* material sense. It is, in fact, the sole means by which consciousness becomes aware of the environment of the body, and through which it is reacted upon or reacts upon itself in five different ways.

The most desultory study of physiological psychology makes it quite clear that all of the five senses are, in the ultimate analysis, extensions or variations of the basic sense of touch. What we call the sense of hearing is merely the sensation resulting from contact of the vibrations in the air with the tympanum of the ear; as what we term sight is produced by contact of the subtler vibrations in the (hypothetical) ether, called "waves of light," with the retina of the eye. Nor are these refinements of the sense of touch less material, *au fond*, than those resulting from the contact of the grosser vibrations of gases, liquids, or solids with other surfaces of the body, producing the sensations of smell, taste, and touch proper.

The singer especially finds himself none the poorer for this analytical reduction of his powers of perception to different phases of a single sense. On the contrary, when he rehabilitates himself mentally from the basis of touch he will find that he is possessed of seven or more physical servants instead of five. Out of the sense of hearing he evolves another distinctly "musical" sense, by which he is enabled not only to distinguish one sound from another, but to estimate their relative values, pitch, intensity, rhythm, tempo, etc. (Ordinary hearing can distinguish the dull roar of city traffic from the hum of factories, for example, but only the rare extension of musical sense can distinguish the *pitch* of each of these sounds.)

In the same way the painter, the sculptor, the architect, even the French modiste, differentiates out of the sense of sight a special "artistic" sense of color, form, line, or mass, and their relative values, for which we have, alas! no name save that of "taste," borrowed from the epicure's particular extension and

refinement of the sensations induced by eating and drinking.

Similarly, Miss Keller has cultivated for herself an etherealized and unique faculty out of the sense of smell, which gives her not only a satisfactory conception of "the manner in which sight and hearing discharge their functions," but an appreciation of the mental characteristics and qualities of her acquaintances apparently as shrewd and correct as is usually obtained through facial expression or the sound of a voice. "There is something of the fallen angel about it," she writes of this despised sense, estimated by Diderot as the most voluptuous of all our physical servants.

Here, indeed, is a new psychology, a fresh evangel for those who sit in the darkness of human sense—not of the fall of man, but of his fallen senses. Groping patiently against the darkened and silenced walls of the flesh by the inner light of spirit she has struck off the fetters of this humble servitor and of the almost equally discredited sense of touch. Restored to their high offices as spiritual

senses and ministers of truth, they become touchstones of character and kindness, bearing messages of love and sympathy to the imprisoned soul, feeding the hungering spirit with faith and hope, and stimulating the isolated intelligence with courage for action and endeavor.

In no respect has man so blindly ignored his birthright of dominion over the body as in neglect of *the sense of muscular movement.* Upon correct control of this phase of the sense of touch the active use of all the other material senses is dependent. If he had only the boasted five senses man would indeed be little better off in his material state than the cocoon. Swathed in the flesh, with its five loopholes for communication with environment, he could merely peep, and listen, and sniff at an immovable and inexplicable universe. At best he could only rise to passive states of consciousness. Yet for his one active state, the sixth sense, by means of which he finds himself, frees himself from his shell and stands forth in touch with creation and able to play the man at all, he has not even a

name! The borrowed term, *kinesthesis*, for this sense of muscular movement so well known to the wise and wonderful sons of early Greece, sounds as foreign and as unwelcome to modern ears as would the true enharmonic intervals of their musical scale. Especially strange is it that singers should pay almost as little regard to this faculty so vital to the exercise of the vocal art as do marionettes to the strings by which their movements are controlled.

Of the immense and inestimable benefits available to mankind in the prevention and correction of wrong movements and habits of the body through education or re-education of this much-neglected kinesthetic faculty it is not for the present writer to speak at length, save as it relates to the study of diction. Suffice it to say here that, so long as consciousness can manifest itself only through some movement of what Hamlet so pithily described as the "*machine*" to him, the supreme importance of proper cultivation of this sixth sense cannot be too strongly emphasized. (See note VIII.)

That there is no function of the body that cannot be brought under control of the conscious will is an ancient truth which Oriental philosophy has long ago proved. Whether it is beneficial or even safe for man to force issues with nature beyond the present limit of his sensory-motor equipment is a point not yet demonstrated to the entire conviction of the Occidental mind. Certainly all attempts to establish conscious control of the vocal cords, for example, have proved more or less disastrous to the vocal art. There can be no question, however, of the fact, fully demonstrated by physiological psychologists, that the action of any part of the so-called "subconscious" muscular mechanism which possesses nerves of sensation can be brought into the open field of consciousness until educated or re-educated to perform its functions correctly.

In no department of culture are the possibilities of attainment along this line greater than in the art of singing, since, as if in compensation for leaving the singer without any means of consciously directing the action of

the muscular mechanism of the larynx in producing the fundamental tones of the voice, nature has furnished two other avenues of control—one through the organs of articulation, another through a special system of sensory-motor nerves for artistic breathing quite independent of the automatic mechanism of ordinary respiration. (See Note VI, page 329.)

Nature may be trusted to supply the needs of her own creations, but only these. To the degree that man himself becomes an artistic creator, to that degree must he depend upon the action of conscious intelligence for the expression of his artistic conceptions.

If the respiratory muscles are left free and unhampered the body will supply itself automatically with air sufficient for life and normal speech. But it is not in nature's contract to supply the muscular strength and endurance necessary to sustain, enlarge, and project tones and words in singing. It seems, indeed, nature's deliberate policy to furnish merely the necessary mechanism for artistic expression to be used, misused, or neglected

by man according to his own discretion or lack of it. Every trained artist has realized this fact more or less clearly in his own work, as regards the control of his breath. Few, if any, will dispute the conclusion of those psychologists who hold that the artistic breathing of the singer is voluntary and of *cerebral* origin, not, like the ordinary respiration used in normal speech, an automatic act governed subconsciously through the respiratory center in the *medulla* or "lower" brain.

What he strangely—and unfortunately for his dual art—does not realize so clearly, if at all, is that the same distinction applies to artistic *articulation* in singing. The fact is that, in both instances, vocal technique is just as dependent on the singer's control of muscular movement as the technique of the pianist or violinist. One is gained by exercise of the hand and arm, the other by exercise of the organs of articulation and the respiratory muscles. One is as "subconscious" as the other—no more, and no less, *after it is mastered.* Whether it can be mastered subconsciously let the pianist who has

labored with his left hand, his short thumbs, or his muscle-bound third fingers reply!

Just how any performance is more "artistic" for being automatic or imitative has never been made very clear by those who object to technical training. Is Paderewski less artistic because he developed his technique and still keeps it by means of "five-finger exercises"?

With the first consciousness of similar *kinesthetic* control the vocal artist becomes aware of the tremendous limitations that have been set upon his powers by submission to the dominion of the ear alone. He begins to realize that the sense of hearing is merely the *chef d'orchestre* of his vocal performance, inciting, judging, and directing the *ensemble* of effects, but working empirically, without any control of the causes which produce those effects. While by experiment and imitation the singer is able to regulate and modify "by ear" the audible results produced by automatic powers in the dim regions of the subconscious mind, such as the pitch, intensity, and duration of the fundamental

tone and its reverberations in the resonant tone, he would be unable to do even this without more or less consciously employing the aid of the auxiliary *sense of movement* through the sensory-motor nerves of the artistic breathing apparatus.

Over the mechanism that produces the free vibrations in the mouth, which give to the vocal note its vowel character and enable man to articulate the tones of his voice into spoken or sung words expressing his profoundest thoughts and feelings, the "arrogant" ear has no more real control than the director of an orchestra has over the instruments of the musicians producing the *ensemble* of tones over which his baton presides. The control of these subtle and delicate mouth-tones, which differentiate the music of the human voice above that produced by any other instrument, has been confided to that humbler physical servant whom Diderot and Miss Keller alone have had the courage to honor as it deserves —the sense of touch, exercised through the sense of movement in the organs of articulation.

The value of this auxiliary sense is recognized and cultivated in the writing of words. The child is not merely given a copy for the eye to imitate, but is taught how to hold the pen and to shape each letter by moving the hand correctly. Why should the faculty be neglected in its equally important office of shaping the vowel-chamber correctly and making proper contacts for the consonant processes in speaking or singing? As a natural result of this neglect we have all the lamentable host of speech defects, lisping, stuttering, stammering, harsh and disagreeable habits of articulation, indistinct and slurring enunciation, illiterate "accents," so called—local, provincial, national, and foreign—and last, but not least, inarticulate mumbling or garbling of the poet's text by the majority of singers. Parents, teachers, and singers are alike without excuse for this state of things at the present day, since science has so plainly revealed the cause and the remedy. For prevention and cure of one and all of these defects nature has provided a complete system of control through the sensory-motor nerves

of the organs of articulation—the tongue, lips, and jaw; and the education of every deaf-mute, especially the triumphant demonstration made by Miss Keller's teacher, is proof of the marvels that can be accomplished through tactile sensibility to vibrations, and control of the same through the auxiliary sense of muscular movement.

"Touch sensations are permanent and definite," writes Miss Keller, in her shrewd estimate of the relative value of the services of the five senses. The singer who begins to realize the sense of security and conscious power given by these more definite and permanent impressions gained through the sense of movement in the organs of articulation feels less surprise at the writer's final assertion, that she would not exchange the sense of touch for that of the more generally esteemed sense of sight. He has caught a glimpse of the light which llumines her world; that it is *Mind* which sees and hears, not the eye and the ear; Mind which sings, not the larynx, the vocal cords, nor yet the brain.

In one of his London lectures M. Henri

Bergson characterized the brain as an organ of sense, used by the conscious intelligence to orient itself toward action. He further stated that, as yet, physiological psychology has only established the fact that there are sensory-motor regions in the brain, and that, in his own opinion, *nothing else would be found there.* "Man is a being who acts upon matter," continues this great and progressive thinker.

Such psychology has indeed emerged from the biological laboratory, and is winging its way far beyond the threadbare hypothesis that thought is a mere secretion of the brain. We are, happily, no longer left to infer that mental concepts originate under a human skull; that the poetry of Shakespeare and the music of Beethoven are the result of certain convolutions of the gray matter found therein.

Mr. Bergson's theory that the brain is simply "*the organ of movement,*" and probably not anything else, "is the most rational as well as the most reverent conclusion yet reached by the psychologist in regard to the rôle played by that organ in the processes

of intelligent thought and action. It is of special significance to the student of artistic speech, in view of the limitations set upon his art by the conclusions and influences drawn by the medical profession from the pathological condition known as *aphasia*, or loss of the power of speech through inaction of the region of the brain known as the "speech center." From the point of view attained by Mr. Bergson we are justified in regarding this special sensory-motor region as a mere switchboard used by the conscious mind in sending out articulate vocal messages. We also know that a telegraph operator is unable to send messages if his switchboard or its wires are deranged by a storm. We do not, however, take this fact as any evidence that the electricity originated in or is controlled by the wire, much less that the thought embodied in a message had its origin in the switchboard, the wire, the power-house, or the brain of the operator. We know, in fact, that the electric messenger can travel without any wire at all! Why, then, should we accept *aphasia* as final proof that the power

of communicating thought is lost or impaired by loss of speech in its usual form of manifestation. Has any fair opportunity been given to such a patient to re-establish the speech processes through tactile motor sensibility, as in the case of deaf-mutes?

Fortunately the type of *aphasia* manifested by so many singers is not the result of any such derangement of the speech center of the brain. It is due merely, as we have already seen, to a failure to co-ordinate the processes of articulation to the change from the concrete or gliding movement of the voice in speaking to its leap ng or *discrete* movement in singing. The result, however, is an inhibition of the processes of speech sufficient to leave the sounds made by the voice partially or entirely inarticulate and meaningless.

For such singers—for all, indeed, whose aim is true artistry—the message of the new psychology is of immense significance and value. The sense of hearing is only one of the avenues through which man exercises dominion over the body. At the portal of

each, and connecting all with the central *organ of movement*, are the sentinels of that "most profound and philosophical" of all our physical servants, the *tactile* sense. Failing to find exit or entrance by one, these humble "subcontrols" pass the message on by another.

The ear presides over the process of *phonation* alone, or the making of sounds, *per se*, and as the organs of phonation are deficient in sensory nerves its motor-power is practically automatic. The ear is, therefore, unable to control the changes of adjustment in the organs of articulation and of respiration necessary to sustain, enlarge, and project the words and tones in singing. This can only be accomplished through the sense of muscular movement in the organs of articulation and of respiration themselves. In the cultivation of this kinesthetic faculty lies the road to dominion in the vocal art. This sixth sense, enthroned within the outer circle of the tangible five, enables the singer to exercise intelligent, absolute, and unlimited control over both word and tone the former directly, the latter indirectly, as it has enabled Miss

Keller to "feel all the soft voices of earth." Let the vocal student, therefore, deliver himself promptly from the dominion of the ear. Let him relinquish the illusion that the sense of hearing is more spiritual or less material than the other senses, and realize that he has equal dominion over all for the expression of his mental concepts.

First of all, he must learn to *feel* the sensations of tone in the resonators above the larynx and the sense of movement through its four phases in the organs of articulation and the muscles used in respiration.

The difference in the action of the two kinesthetic systems in co-ordinating the functions of respiration, articulation, and phonation for normal speech and for singing may be roughly illustrated or indicated by a series of planes. (See Diagram, Fig. 1.)

Beginning with Mind as the speaker or singer we have, as the inception of the spoken or sung word, a mental concept (*a*, *b*, *c*) consisting of continuity of consciousness (*a*–*b*), formulated thought (*a*–*c*), and the emotion aroused by it (*b*–*c*).

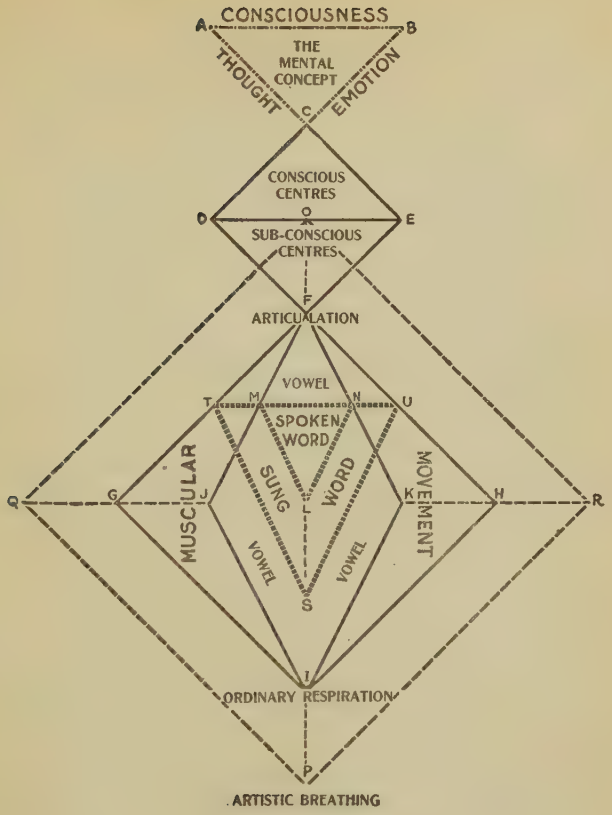

Fig. 1

DIAGRAM OF PLANES ILLUSTRATING THE ACTION OF THE KINESTHETIC SYSTEMS IN ENLARGING AND PROJECTING THE SPOKEN WORD INTO THE SUNG WORD, THROUGH ARTISTIC RESPIRATION AND ARTICULATION

The first plane through which this trinity of the mental concept is laid four square to the body represents the organ of movement, the brain (*c*, *d*, *e*, *f*); the upper triangle (*c*, *d*, *e*) containing the centers of conscious action, the lower (*d*, *e*, *f*) the subconscious or automatic centers.

At *f* this plane converges with the plane of muscular movement (*f*, *g*, *h*, *i*), the four sides of the plane representing the four phases under which the kinesthetic faculty manifests itself: *tactile sensibility* (*f–g*); *change of position* (*f–h*); *muscular expansion* (*g–i*) and *muscular contraction* (*h–i*). In the upper triangle of this plane we have the speech processes converging at *f* in the function of *articulation;* in the lower, the processes of breathing converging at *i* in the function of *ordinary respiration.*

Upon this plane of general muscular movement, and co-ordinated with it at *f* and *i*, we have the plane of the vowel (*f*, *j*, *k*, *i*). *Within the vowel plane* we have the triangle of the human voice. This trinity of tones arises from the center of *phonation* (*l*), the myste-

rious function which takes place on the subconscious or reverse side of the plane of muscular movement; the two divisions of this fundamental tone (*l–m* and *l–n*) being united and made articulate by the vowel-tone (*m–n*), thus producing the phenomenon of the spoken word. Let the student note that the point of phonation is not *directly* connected with any point of the plane of conscious muscular movement. How, then, is the singer to enlarge the triangle of the spoken word into the sung word containing the complete voice chord of the perfect vocal tone?

If he begins at phonation (*l*) by the imitation of musical tones *as such*, he places himself in the position of a Roman charioteer who has let his reins drop and attempts to guide his steeds by the sound of his voice alone. Dashing around the vocal arena, uncontrolled and without co-ordination of movement, three tones drag the frail chariot of the human voice hither and thither at the mercy of physical laws as inexorable as the centripetal and centrifugal forces between which the ignorant or careless Roman driver often steered to his

doom. If, by chance, the voice itself escapes disaster one or more of the steeds is likely to come to grief, so that if the singer arrives at the goal at all it is to find himself either breathless or inarticulate, and trailing in the rear of few winners of the great prize of *articulate tonal beauty*.

Now let the student approach his task more intelligently, not as the mere imitation of musical sounds, but as a dual mental concept to be expressed by a trinity of tones through a co-ordination of three bodily functions. Let the arrogant ear retire to its proper and sufficiently important post as director, critic, referee, or umpire of the performance. Recognizing Mind alone as the actor, let the reins of control be transferred from the sense of hearing to the sense of muscular movement. Instantly the kinesthetic center changes from the lower to the higher brain, so that the processes of respiration and articulation can be brought into the open field of consciousness *until* perfect control of each is secured and co-ordinated with the process of phonation according to the *discrete* movement of the

voice in singing. Glancing at the diagram once more we see (by the dotted lines) how, as the automatic action of ordinary respiration becomes the controlled action of artistic breathing, the whole plane of muscular movement expands. As the kinesthetic center rises from the lower to the higher triangle of the organ of movement (*f–o*) the volume of the tone increases with the increase in the amplitude of the vibrations produced by the corresponding deepening of the respiratory process (*i–p*). With the corresponding expansion of the vowel plane (*j–g* and *k–h*) the spoken word (*l, m, n*) is enlarged into the sung word (*s, t, u*).

As the result of this intelligent control of the three primary tones of the voice through the dual process of respiration and articulation we have the complete vocal tone or vowel harmony containing all the tones and "overtones" of the full voice chord. Thus, through tonal beauty made articulate and intelligible, is wrought the miracle of song.

III

POETRY AND SONG

If Music and sweet Poetry agree,
As they must needs, the Sister and the Brother.
—SHAKESPEARE.

. . . sweetest music unto noblest words.
—TENNYSON.

ROBERT FRANZ declared it to be his conviction that "there is a much closer relationship between poetry and music than the average mind can comprehend."

Whether they be regarded in the fraternal and platonic relation assigned to them by Shakespeare, or in the closer and more sacred union of Tennyson's ideal, it is certain that music and sweet poetry have not attained any striking degree of this ideal harmony and unity in the art of the average singer or song-writer. Yet the student of "the average mind" need not be utterly cast down, nor cease his efforts to grow in comprehension of

this subtle relationship, since even the poet and musician seem to come under the same law of limitation.

"Musicians have seldom known anything of poetry," says Dr. G. E. B. Saintsbury, and if one is to judge by the quality of the verse to which some of the greatest have tuned their lyres it would be difficult to defend them against the charge of that master critic of English poetry. On the other hand, the musician beating his wings against the rigid and encaging walls of prosody retorts in despair that 'tis the poet who knows nothing of music!

To lovers of both poetry and music who are neither poets nor musicians this ancient conflict remains as distracting to-day as when Plato bewailed the "rending asunder" of the elements of Greek music by the poets "who put unmusical language into verse," and the musicians who "made melody and rhythm without words," so that it became "difficult to understand what subject worthy of the name it represented." [1]

[1] Legg, page 669.

It is little wonder, then, that for so many years the musical world has sat mute with awe before the brave iconoclast of Bayreuth, who dared to override the difficulties by demolishing the traditions of poetic form, and appropriate the débris of iambic, trochee, and dactyl, of line, couplet, and quartrain, as mere building-material for the poetic framework of his great harmonic structures.

Although Wagner admitted the contention of Gluck, that "music is but the handmaid of poetry," he did not hesitate to subject both to the bondage of his own dramatic muse. Had he not shown equal disregard of the limitations of the human voice his bold *coup* might have imposed this solution of the vexed problem on the composers of all other nations indefinitely. When, however, tonal beauty as well as poetic form are sacrificed to the "epic stride" of the drama, the true lover of song, who is also a lover of poetry, finds the old conflict renewed in his soul even under the spell of the great orchestral magician. Returning for a brief respite to the lowlier levels of German *Lieder*, among which Wag-

ner's own are not the least perfect, one wonders if the gentler lyric muse is not, after all, the spouse designed by the gods for Music's mate.

For the English composer and singer such a consummation were indeed devoutly to be wished, since the master poet of the world so often tuned his immortal lyre to those simple and natural measures which the genius of Schubert recognized at sight, even through the obscuring veil of translation, as ideal texts for song. Had England been able to cage the composer of "Hark! Hark! the Lark" and a few of his peers, as she caged Händel and Haydn for a season, her songs as well as her oratorio might have rivaled those of Germany. No language is richer than ours in lyric verse; not merely musical meters, such as those of Keats, Shelley, and Tennyson, which sing themselves so perfectly that adding other strains to their measures would be, indeed, the superfluous "painting of the lily," but poems intended to be sung. That this amazing mass of lyric material furnished by Shakespeare, his predecessors, and con-

temporaries, and his followers down to the present day, has remained practically unutilized is due chiefly, it must be confessed, to a dearth of native composers. Up to the present time the genius of the Anglo-Saxon race has voiced itself more spontaneously in poetry than in song, finding the exquisite subtlety and restraint of the music of verse itself a more natural form of expression than the more emotional and elemental cadences of the vocal art.

Under the influence of more frequent travel abroad, however, of residence and study among more musical nations, and more serious culture of music at home, the English temperament is expanding emotionally. As the adopted art thus becomes acclimated to the poetic and spiritual ideals of the Anglo-Saxon race we may confidently await the advent of composers who shall transform our incomparable treasures of verse into music that, like the poetry of Shakespeare, shall be more than national—the complete poetic expression, in musical form, of universal thought and spiritualized human emotion.

Whether such composers be national, foreign, or international matters not if they but seize the spirit of the language, as Händel did in creating English oratorio, for the genius of a nation is crystallized in its speech, and speech is the soul that informs the fair body of song.

Upon the recognition of this first principle of the vocal art depends the supreme success of the lyric artist, whether composer or singer. It is an invincible law of the association of the arts that the greater shall be served and the lesser subservient—by the greater being understood, of course, the *inclusive* art. Even Raphael's supreme achievement faded into insignificance on the walls of the Vatican until, at Angelo's behest, he made his perfection of form and color subservient to the lines and spaces of the architect. The superb fragments of Greek sculpture known as the "Elgin" marbles regain their pristine splendor only as the imagination restores them to their proper niche in the tympanum of the Parthenon; but the artist who lifts his eyes to the ruins of the Temple of Pallas Athena

needs not their grace and beauty to recreate the glory of the Acropolis. By the same token we do not ask what musical measures were drowned when Sappho's lyre sank beneath the Ægean waves, since the soul of her song survives in the word for Brahms or another.

While the poet may not claim that poetry is greater than music, *per se*, the song-writer, for his own art's sake, dare not deny its inclusive supremacy. Shakespeare's lyric lark mounts heavenward as freely on the music of English verse as when accompanied by Schubert's winged strains; nor would they soar together in such lyric unity had not the composer recognized his art to be, as Dr. Saintsbury tersely puts it, "an accidental and unnecessary companion" of the poet's verse.

It is a grievous pity that, just as composers are beginning to realize the possibilites of English as a medium for song, our own poets should frighten them from the field by utterances of such astounding finality as Mr. T. Watts Dunton's dictum that "the preponderance of sibilants" in our speech will always

prevent English from being "a singing language." In support of this assertion, and as an example of Shakespeare's "frequent obliviousness" to this characteristic defect of our language, he quotes the lyric to which we have already referred:

Hark! hark! the lark at heaven's gate sings,
And Phœbus 'gins arise,
His steeds to water at those springs
On chaliced flowers that lies;
And winking Mary-buds begin
To ope their golden eyes;
With everything that pretty is,
My lady sweet, arise,
Arise, arise.

"Which," he adds, "would have been more exquisite still, at least from a musician's point of view, if Shakespeare had attended to his sibilants."

It is true that the sibilant occurs twenty-three times in the nine lines of this song, but had the critic made a *phonetic* analysis of the same he would have noted the fact that only *seven* (the initial *s* in "sings," "steeds," "springs," and "sweet"; the final *s* in

"Phœbus," and the *ch* and *c* in "chaliced") have the *hiss* so "entirely disgusting" to himself and his predecessor of Halicarnassus, and the despair of the average singer. The remaining sixteen have the more sonorous, softly *buzzing* sound of the English *z*, which *does* "give the singer a little chance," else had not even Schubert's immortal setting made this the best-known and oftenest sung of all the Shakespearean lyrics.

It is evident that Shakespeare was not "oblivious" of the fact that the English sibilant has two forms, *resonant* and *non-resonant*. Evidently he was also equally aware—with that amazing awareness of all truth, scientific as well as poetic, which distinguishes his genius—that any singer who has mastered the secret of resonance could sing this song so that not a single hearer need remark "the hissing sound that pervades this otherwise divine lyric."

One may not claim that Shakespeare was always so skilful or so careful in thus giving precedence to the more sonorous sound of the sibilant as in this case. Indeed, had our poet-

critic chosen instead, by way of illustration, the first line of the sonnet:

When to the sessions of sweet silent thought,

in which five of the six sibilants occurring in this single line have the *surd* hiss of the non-resonant *s*, he might more readily have supported his contention. Certainly the words, for this reason, would be extremely difficult to sing. Happily they were not meant to be sung. Had they occurred in a lyric, however, any true lover of Shakespeare would prefer that they should remain forever unsung, rather than alter by a single *s* that immortal line. Note how vividly the swift hurtle of *surd* sibilants suggests the rush of wingèd memories settling in the poet's heart, and how, by the subtle art of contrast, of which he was past master, it emphasizes the serene *adagio* of the exquisite vowel harmonies that follow—the prolonged thrill of the double *e* in "sweet," the hush of the long *i* in "silent," and the brooding *ou* in "thought."

It cannot be denied that this preponderance

of sibilants is "a characteristic defect of our language." But it is a defect which it possesses in common with German, which has, in addition, a whole series of *aspirated* sibilants, *ch*, *sch*, *tch*, and a surd sound of *z* (ts). Take, for example, the German translation of Shakespeare's lyric to which Schubert's music was wrtten:

Horch! horch, die Lerch im Aether blau,
Und Phœbus, neu erweckt,
Tränkt seine Rosse mit dem Thau,
Der Blumenkelche deckt.
Der Ringelblume Knospe schleusst
Die goldnen Aeuglein auf:
Mit allem was da reizend ist,
Du süsse Maid, steh auf,
Steh auf, steh auf.

Here, it is true, we have only eighteen sibilants, as against twenty-three in the text of Shakespeare, but *sixteen* of these are *surd*, as against only seven in the English original! Nevertheless, even Mr. Watts Dunton would hardly claim that this defect prevents the language of Haydn, Händel, Bach, Mozart, Schubert, Schumann, Brahms, Wolf, Strauss,

and a few other song-writers from being a "singing" language.[1]

In celebrating the nuptials of poetry and music the composer's task is truly a difficult and delicate one. Not only must he adapt his harmonic structure and melodic form to the rhythm of the poet's verse, but he must aid the singer in the latter's equally arduous task of articulating the poet's text with the bolder, leaping, *discrete* movement of the voice demanded for singing, instead of the easily gliding, *concrete* movement of speech-tones.

It is, of course, the composer's prerogative to decide what poetry is "suited to the lyre." Not all lyrical verse is truly lyric in this, the original sense of the word. For example, utterance could scarcely be more superbly lyrical in character than the sonnets of Shakespeare hymning the praises of friend-

[1] The exaggerated hissing of the sibilant sounds so characteristic of British speech is, happily, not one of our many American faults. Hence the foreign singer would do well to hear that truly "divine lyric" sung by an American barytone before accepting the English poet's verdict as final.

ship, or those in which Petrarch, Dante, Mrs. Browning, and Rossetti voice the raptures of love. Yet how many of these could be musically scored without violation of the poetic phrasing or loss of the subtler charm of their intrinsic word-music?

It is true that not all verse intended (by the librettist) to be sung is truly lyric in style, and quite as much having fine lyric quality is so anemic or banal in sentiment that it is unworthy the consideration of either composer or singer. The former, unfortunately, knowing that it is possible for him to produce the sweetest music, *per se*, with words either noble or the reverse, is apt to be strangely blind to the fact that both poetic and musical orm are inadequate to secure the lasting and universal appeal of immortality for such work outside the range of opera.

On the other hand, in fitting his measures to the poet's verse the song writer sometimes fails to consider the singer's larynx, that exquisite human lyre strung with delicate vocal cords, limited in range and in endurance.

He persists—as he doubtless will until the end of time—in writing long notes on short vowels, and *vice versa*, rarely even taking care that the long vowels to be crowded into the Procrustes bed of his short notes are not also *mixed* vowels. In spite of the prayers of the singer and the warnings of the physiologist and the phonologist he continues to strain the delicate human instrument to the utmost by the iteration and reiteration of notes in the highest "register" (so called) of the voice, and that without regard to the mouth-pitch of the vowel resonances on which they are to be sung! The singer who lends himself to such desecration of his own art, however, is without excuse and deserves small pity.

Again, the composer does not always see the value to his own art in following the poet's lead in the matter of *phrasing*. The intelligent reader or speaker does not articulate according to words and sentences. Knowing that punctuation is merely a guide to the eye, as versification is to the ear, he groups his syllables into phrases solely with regard to the *ideas* to be translated into sound. It is

therefore imperative that the song-writer should construct his musical phrases in exact conformity to the *thought*-phrasing of the text. Yet the greatest sometimes sin against the poet in this respect. Even Brahms cannot be held guiltless of thus forcing the singer to do occasional violence to the text of his song.

If the musical phrasing of the song-writer be such as to maintain perfect unity in the expression of the poet's thought and the composer's emotional commentary on the theme thus furnished, the more venial sins against versification may well be pardoned. Iambic and trochee, dactyl and anapest, exist only for the critic and student of prosody. Neither singer nor song-writer need concern himself with these dry bones of the poet's creation. Indeed, according to Dr. Scripture, the poet himself pays little heed to mere versification as such; his aim being simply to "give expression to the rhythmical impulses he feels . . . he demands merely that there should be a series of regularly recurring groups of beats in substantial

harmony with his flow of thought." In short, as poetry has its own music, so music creates a prosody of its own. The medium through which they are fused into the perfect unity of vocal expression is the *vowel*. Hence the song-writer who fails to study the vowel music of the poet as he studies harmony, counterpoint, or thorough-bass is simply clipping the wings of his own muse.

There is more than a poetic figure, there is a great scientific truth in the words of Tennyson quoted at the opening of this chapter. In typifying the union of masculine and feminine *mentality* in human love as the setting of "sweetest music unto noblest words" the poet assigns to music the supplementary, accompanying, feminine rôle, making the word the active, creative, masculine *principle*. Herein, truly, is food for the composer's thought, and the English song-writer, of all others, should ponder well its deep and vital significance, for in this scientific fact lie possibilities as yet but faintly dreamed for the art of English song, in view of our incomparable wealth of lyric verse.

Produced chiefly during the sixteenth and seventeenth centuries, when all England was resounding with the triumphant strains of the music of poetry in its most perfect form, the simpler and less complete and compelling measures of its song verse were scarcely noted. "Lovers of poetry, seeing they were for music, shuddered and passed them by," says one critic. Thus, unless by happy chance included in the text of some popular drama, they were preserved only in the rarely read pages of English anthologies. The song-writer is apt to scorn in equal measure the subtler cadences of word music in which the poet revels; but if, in his turn, he "shudders and passes them by" it is to his own loss and that of the singer.

So irresistible is the siren lure of music that the singer will follow the composer to almost any length. He will cheerfully sacrifice the text of opera to dramatic or *colorature* tonal effects, or blandly insult the intelligence of his audience with the inanities of senseless translations. He may even cast the priceless treasure of his voice into a mad maelstrom

of orchestration, to be strained of tonal beauty and eventually smitten into silence for the brief glory of singing music that only instruments of brass or wood can survive. Happily for all concerned, however, there is a point beyond which no singer who is also an artist can be lured; he will not sacrifice his own art in a *song*. In this the most natural, the most spontaneous, and the most beautiful form of the vocal art the voice is supreme. Here the singer realizes his own sovereignty and recognizes as his scepter—the *word*. He knows, instinctively and invincibly, that in the vowel is enthroned the soul of his art, and that by the chastity and beauty of its delicate harmonies his singing will be judged when the voice rises, solitary and supreme, in this unique and subtle music by grace of which it becomes the most divine of all instruments for the expression of human thought and emotion.

If, under the spell of his own jealous muse, the song-writer disregards occasionally the rhythm of the verse, juggles with the consonant processes, or remarshals the syllables

in their measured tread, his sins may be veiled and condoned by the singer for their mutual advantage; but he dare not, for his own art's sake, lay desecrating hands upon the *vowel music* of the poet, for thus he destroys the only common ground on which the three can meet, the medium through which alone the singer can illumine and irradiate the poet's thought with the light and color of the composer's musical tones.

IV

VOWEL MUSIC

> . . . whose tuneful and well measured song
> First taught our English music how to span
> Words with just note and accent, not to scan
> With Midas' ears, committing short and long.
> —MILTON.

"WHERE there is no poetry truly lyric there can be no graceful or symmetric melody," writes Dr. Burney in his *History of Music*. But why poetry only? Prose also may be lyric and poetic as well. Has not Charpentier demonstrated this fact to our own prosaic era in "Louise"? To claim that lyric *poetry* alone is suited to the vocal art would be as unreasonable as to maintain that all dramas should be written in blank verse. In that case oratorio, from the "Messiah" to the "Dream of Gerontius," had never been.

It cannot be denied that lyric quality

alone had launched many inane and worthless verses on the wings of song, and for lack of it truly poetic utterance has failed to meet the requirements of music, as in the efforts of Bruneau to create music drama from the text of Zola's prose poems. How then, in the face of such apparently contradictory facts, is the singer to judge the characteristics that render a text available for the finer effects of his dual art?

First of all, the thought it embodies must be poetic in sentiment, capable of touching the heart, moving the emotions, or arousing the spirit. To what issue—be it gladness or gloom, aspiration or submission, courage or despondency—matters not at all *esthetically* if it but move the soul or stir the feelings.

This thought may be expressed either in poetry or prose; but whichever the vesture chosen it must be lyric in *quality* as well as in form. Many song-writers are misled in their choice of texts by lyric form alone, or even some facile swing of mere versification which lends itself readily to musical rhythm and

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phrasing. Not a few, indeed, of the greatest seem guided at times by the lure of rhythm alone. Nor is this difficult to comprehend, since it is just this pulse-beat of the lines, the measured systole and diastole of the poet's art, that most readily conveys the ebb and flow of emotion of which tone is the spontaneous expression, as the word is the natural vehicle of the thought expressed. The composer defeats his own aim, however, if he sacrifices the *vowel music* to this mere emotional movement, for with the vowel he sacrifices a *component part of the vocal tone itself*, as we shall see later. Hence the singer not only leaves his audience cold through lack of comprehension of the thought-content of the song, but in blurring his vowel resonance he dissipates the finer essence of the music as well.

For this reason the early Italian masters held rhythm to be second in importance to the word in writing for the voice. Many modern song-writers, in their scorn of "tuneful and well-measured song," are apt, alas, to ignore this fact, and to treat those exquisite reso-

nances with as little regard as they do the delicate human organs used in their production.

The singer who understands and reverences his own art and would preserve the beauty of his voice will therefore, in his selection of songs, test the adaptability of the composer's work to his vocal capacity by the handling of the vowel music of the text.

These elemental speech-sounds are indeed the very foundation on which the fair superstructure of the art of singing is erected. This subtle word melody has been defined by Dr. Saintsbury as "that special charm of music which, without attempting the old prosaic suiting of the sound to the sense (the '*r* to the dog and the *s* to the snake,' and so on), attempts to add a sort of musical accompaniment, in poetical, not musical, music, to the mere lexicon sounds themselves." [1]

To the casual reader this definition may seem at first glance simply to differentiate poetical from "musical music," rather than

[1] *The History of English Prosody*, G. E. B. Saintsbury.

to emphasize their ground of unity. But if we follow the critic's summary of the degree to which various European languages are distinguished by this peculiar charm we find it an extraordinary testimony, doubly valuable because apparently so unconscious, to the fact that a language is suitable as a medium for song largely to the degree that it is characterized by this intrinsic vowel music. We are told that "it is at its absolute perfection in Greek, very great in Latin, especially Low Latin, and in Spanish . . . so prodigally and excessively lavished in Italian that its promiscuity makes it, save in the hands of the greatest poets, all but valueless as a distinction."

Have we not here a very parallel to the genesis of singing *as an art*—born of the Greek drama, nourished in the cloisters of Rome, whence its echoes spread through the churches of Christendom in the sonorous syllables of the Latin tongue, while in Spain and Provence secular minstrelsy was celebrating Romance and Chivalry in the strains that were to culminate on the melodious Italian

tongue in the glories of modern song and opera?

Again, we are told that "this vowel music is perhaps rarest in French, of all languages—*that is, in modern French*"—a fact most significant and enlightening to the singer who finds it so difficult to secure sonority as well as resonance, volume as well as *timbre* of tone, on the many closed, covered, and nasal resonances included in the French vowel-gamut. Not less significant is our critic's reservation that "Victor Hugo's exceptional possession of the secret is his great glory," and his inclusion of the name of Verlaine among the very few modern French poets "who know it well."

By comparing the diction of the artists of the *Comédie Française* with that of the artists of the French lyric drama, the singer who has made any study of phonology, or even of phonetics, will recognize at once that the general effect of melodiousness in the French language is not due to intrinsic music in the vowel elements. It is secured simply by modification of the consonantal processes

—the clever ruse of *liaison* and the deftness and delicate precision with which the articulatory process is accomplished (when it is not entirely suppressed, as in the "liquid" *l* and the veiled palatal *r*) by the flexible organs of that supremely artistic race. Since modification of consonantal obstruction to vowel emission is pre-eminently necessary to perfect vocalization in any language, French holds its own as a medium for song among languages possessing a more musical vowel element *per se*.

Since our critic is judging from the standpoint of *speech*-tones alone, it is not to be wondered, also, that he maintains a discreet silence in regard to the German language. But the singer knows that the sonorous, Teutonic vowel music is merely obscured in speech by the preponderance and exaggeration of its harsh, guttural, and aspirated consonant processes. The very fact that German *Lieder* can be so beautifully sung in spite of these obstructions proves, indeed, how great, *au fond*, must be the vowel music of that language.

Were the investigation carried into Russian speech we should doubtless find that it is the intrinsic music of the Slavic vowel element which enables that nation and its Polish neighbors to sing their own languages so delightfully, even to foreign ears, in spite of complex consonant combinations that would appal a German artist. Certainly there can be no doubt that this distinction accounts for the superiority of Swedish over its sister speech Norwegian in adaptability to artistic vocalization, the former language rivaling even Italian in the melodiousness of its vowel element.

"English," continues Dr. Saintsbury, "can vie with Greek at its best in this vowel music," which he has already testified is "at its absolute perfection" in the latter language. This surely is an unimpeachable patent of nobility for our much-maligned mother-speech. Certainly no one can question the claim that "Shakespeare divides with Æschylus and Dante the position of the master word musician of the world," nor that all our greater poets possess this special charm

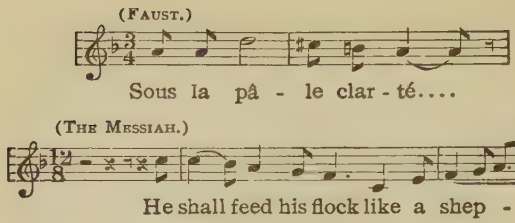
of vowel music which ranks his lyrics among the ideal texts for song. On the other hand, one must admit, with our critic, that "it is often vilely neglected or misplayed" by many of our minor poets. Unfortunately theirs are the very texts which seem to appeal to the average song-writer. These are the original offenders who, together with the singers who neglect the study of lyric diction, have brought upon our language the reproach of being "unmusical" and "unsingable."

The simple fact is that the intrinsic vowel music of English surpasses that of all other modern languages save only Spanish and Italian. It is, indeed, second to these in simplicity alone. We have merely multiplied the original tetrachords of their seven-stringed vowel lyre into a more complete "Perfect System," giving a wider range of expression for the poet's thought.

In order to use this wealth of word melody effectively the singer must analyze and master his vowel resonance as patiently and thoroughly as he practises the notes of his musical scale. In such analysis he will note

first that the poetic music of his text possesses certain characteristics in common with the musical notes of his score, such as *tempo*, *volume*, *modulation*, and *accent* or *stress*. Of these the actor, or other students of speech-music, must make careful and diligent study. The singer, however, must be guided on all points by the rhythm, time value, and modulations of the musical notes. Let him mark, however, that *the finer effects of each are attained by the composer exactly to the degree that he conforms to the vowel music of the poet.* Hence, the true vocal artist will reserve to himself the privilege of modifying each to suit the special demands of his own art.

Just here it must be said that both singer and song-writer sin amazingly at times in this respect against the poetic content as well as the vowel music of the text for the sake of an effective musical climax. Take, for example, the question of stress or accent. How often the sense of a phrase is lost or rendered ridiculous by a misplaced musical accent, as in the following excerpts from "Faust" and from "The Messiah":



In the first, Gounod has given the strong initial musical accent of the second measure to the weak unaccented final *e*, which would be almost muted in speech. In the second, Händel throws it on the auxiliary "shall," which not only weakens the text, but alters its entire significance, as though one were to infer that the Good Shepherd must be coerced into feeding his flock.

In regard to quantity, quality, pitch, and color we have distinct vowel characteristics which must not be confused with the mere duration, *timbre*, pitch, and "color" of musical sounds to which they are set.

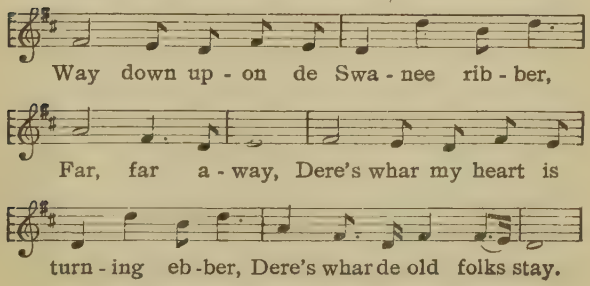
Vowel quantity, as the Greeks termed those variations in the duration of sound in which their own language alone excels English, seems at first sight to be decided, in singing,

by the time values of the music. The student will find, however, that when used with artistic effect it is always based on intrinsic variations in the length of the vowel resonances. Dr. Saintsbury makes this point very lucid in the illustration he chooses from a middle-English miracle-play,

"The land of vision is full far,"

by calling attention to "the way in which, after a run of short, blunt vowels, the last, 'far,' breaks and scatters light and sound like a rocket at its culmination."

A striking example of the same point is found in the simple old negro folk-song, "Old Folks at Home."



Here both poet and composer have given to the three short words in the second line the full value of the six in rhyming fourth line. Thus the amplitude of the vowel vibrations in the broad *a* of *far* and those of the sustained primary resonance of the mixed *a* in *away* are utilized for a two-fold artistic effect. They not only emphasize the sense of distance and separation, but they enable the singer to give to the tone all the full-throated yearning of the homesick and lonely wanderer.

To indicate this variation in the period of constancy of the vowel vibration the terminology of "long" and "short" vowels came into use. And just here lurks the first pitfall into which both singer and song-writer are apt to be betrayed by the fact that so-called long vowels may be sung on short notes, and *vice versa*. True vowel characteristics depend solely on changes made in the size and shape of the vowel-chamber or mouth cavity. Hence, the Italian classification of the vowels into "open" and "closed" is more scientific, more accurate, and less misleading for the

singer. Noting that the more open and spacious the cavity in which the vowel resonance is produced the more easily tones made on that vowel can be sustained or increased in volume, the singer will favor the songs of those composers who, first of all, are careful to write strong, sustained notes on open vowels as often as possible.

Again, we find that the poet whose verse excels in vowel music places these open vowels, as a rule, at the strong points in his line, especially those which coincide with the tonic or accented syllables. With what delight, then, should the singer welcome the work of the song-writer who endeavors to make his strong beats, his musical stress, and, above all, his tonal climaxes coincide with those of the text.

Vowel pitch is generally supposed by the singer—and, alas! too often by the composer—to be decided by the pitch of the tone on which it is sung—a fallacy prolific of confusion and disaster to the work of both. Scientific study of the whispered mouth resonances reveals the fact that each vowel has

an individual pitch independent of the pitch of the tone by which it is aroused. It is even claimed by Dr. Sievers, of Leipzig, that in the work of poets who have a fine ear for this subtle speech-music each poem has a specific melody of its own.

As the pitch of the sung or spoken vowel is not actually audible as a separate tone, composers are apt to disregard this factor entirely. It is far from being a negligible quantity in the singer's work, however, as the following chapters will show. Suffice it to say here, that the adjustment of the pitch of the vocal note and that of the vowel on which it is sung is precisely the most delicate and difficult feature of vocal art, as the Greeks and the early Italians very well knew.

He is a wise singer, therefore, who refuses to be tempted by songs of the most musical character, *per se*, which are written without regard to the pitch of the poet's vowels, especially in the scoring of vowels with a low mouth-pitch such as the Italian *u* (*oo* in *woo*) on very high notes. That, indeed, is the unpardonable sin against the singer's art; for

not only are such tones made articulate at the cost of the vocal cords, but the *timbre* of the voice, as well as the vowel quality, suffers from the unnatural adjustment of the resonators.

Vowel quality is also apt to be confused with *timbre*, or musical quality, of which it is merely a component part. If defined as purity of resonance, another similar confusion arises, as it must, of course, be as pure in the sense of complete vocalization of the breath as the tone. Again, in English or German a vowel may be pure or impure in character as well as in sound; that is to say, its resonance may be "mixed" or merged during emission into that of another vowel, as in the so-called "long" *i* in *tide*. One of the most common faults in the diction of English singers is the habit of employing these voice glides on the pure as well as the mixed vowels of his own language, and vocalizing certain Italian and French vowels in the same way, which is, justly, *anathema maranatha* to the ear of those races accustomed only to pure vowel resonances. Absolute purity of vowel quality, like

correct vowel pitch, may be tested by the whispered mouth resonances, but they can be mastered and maintained in the complete vocal tone only by means of a firm vowel mold obtained through control of the organs of articulation.

The same is also true in regard to that most elusive of all the characteristics of vowel music, which, for lack of a distinctive term, we indicate by the borrowed word *color*. Here, again, confusion has arisen from the fact that this so-called "color" seems to be characteristic of tone as well as vowel. Regarded from the psychological standpoint, which is usually the point of view of the composer, the word is used to indicate those modifications of the voice which are employed for the expression of the emotions in singing. Of this distinctive *aura* of tone color we shall speak more fully in another chapter. (See page 164.) For the present it is sufficient to call the reader's attention to the fact, which every singer knows, that tones sung on certain vowels are *intrinsically* bright or "light" in color, while the same tones sung on other

vowels are somber or "dark," and on others still have a neutral sound which can be shaded or "toned" either light or dark at will.

Again, study of the mouth resonances alone reveals the fact that the *whispered* vowels, unaccompanied by any proper tone, are characterized by the same modifications, having a bright, somber, or neutral sound, according to the position and adjustment of the organs of articulation. The inference is clear. While the mouth resonator in which the vowels are produced is, as we shall see later, one facet of the spectrum of *tone color*, it is itself a spectrum within a spectrum, producing the equally distinctive and individual characteristic of *vowel color*, which gives to the word the lights and shades of the poet's thoughts.

Finally, let the student note that the ultimate charm, the fine flower of the poet's art, depends upon his skill in *contrasting* these variations in the quantity, quality, pitch, and color of his vowel scheme.

Wise indeed is the singer who chooses for his *répertoire* the songs of composers whose

first aim is to preserve these delicate and subtle contrasts in regulating the duration, intensity, volume, and pitch of the notes of his score. Songs characterized by such lyric unity are, of course, rare in any language. That they are rarer, alas! in English than in the languages of races that have heretofore cultivated the musical art more seriously and assiduously is not due to any lack of lyric quality in our vowel melody, but to our carelessly acquired, unstudied diction.

There is no more striking proof of this than the fact that the Schubert song referred to in the previous chapter, although written to a German translation of Shakespeare's text, is equally adaptable to the original English words. If the singer will analyze the poet's vowel music he will readily understand why, in spite of Shakespeare's reckless use of the offensive sibilant pointed out by Mr. Watts Dunton, the ear is still entranced by the strains of this immortal lyric.

The fact is that any consonant process can be so modified in singing as to offer no serious obstacle to vocalization, *provided* the vowels

are correctly placed and their resonances properly sustained.

The singer's vowel analysis takes no account, of course, of the obvious melody of rhyme and meter. Nor need he concern himself in this instance with the characteristics of rhythm, tempo, and volume, in which such perfect consonance has been attained by Schubert's artistic restraint in regulating the movement, time values, volume, and intensity of his musical commentary on the poet's thought. Unfortunately, even the composer's markings are not always heeded by the vocal interpreter, however, especially in the *pianissimo* emphasizing this tender restraint in the opening strain. Is it conceivable that a lover, standing in the hush of the summer dawn beneath the open casement of his dreaming lady, should rudely startle her slumbers by a *forte* "Hark! hark!"? Or that he would suggest the delicate music of the feathered songster fading upward to heaven's gate by a bold *crescendo?* Yet that is how the writer has more than once heard the song rendered in concert.

Now let the student note how the *pitch* of the poet's vowels gives the key-note to the proper intonation of the text. Beginning near the middle of the natural voice scale with the wide variant of the Low Middle vowel in "H*a*rk" and "l*a*rk," it mounts by a gentle upward progression through "*a*t H*ea*v*e*n's g*a*t*e*" to spread its wings on the High Front wide vowel in "*s*ings." Fluttering downward to the Low Front *a* in "*a*nd," it circles back through "Phœb*u*s" and "'g*i*ns" to the low-pitched *o* in "t*o*" only for fresh impetus to soar upward again on the High Front wide *vanish* of the mixed *i* in "r*i*se."

Again, what a broad, firm foundation for musical quantity, stress, and accent is laid in the corresponding vowel characteristics throughout the entire poem; the singer also being aided to give full-voiced emphasis to each by the recurrence of *open* vowels at all the strong points of the lines; the Low Middle wide *a* of "H*a*rk" and "l*a*rk" being resounded again and again in the primary resonance of the mixed *i* and *y* in "ar*i*se," "l*ie*s," and "e*y*es."

How skilfully, too, any sense of monotony in the frequent repetition of this strong vowel has been avoided by variations in vowel *quality*—the clear brilliancy of the high-pitched resonances in "Phœbus" and "steeds" and the alternation of the poignant sweetness of this *ee* sound with the more delicate "light" *a*, before the tender iteration of its long thrill in "my l*a*dy sw*ee*t."

This subtle charm of contrast is further enhanced by the introduction of the somber resonances of the low-pitched Back vowels in "w*a*ter," "th*o*se," and "*o*n," suggesting the dim, cool shades of dewy "springs" in the heart of "chaliced fl*o*w*e*rs." It would indeed be hard to find in any language two lines more exquisitely contrasted than

> And winking Mary-buds begin
> To ope their golden eyes,

the delicate silvery resonance of the first deepening into the full, mellow chime of the second through a complete gamut of vowel tones. Above all, how there plays over every syllable the exquisite and elusive beauty of

vowel *color*, shading through tones as delicately evanescent as the hues of the dawn; palpitating with the opalescent fires of the rising sun, soaring to the very zenith of sound in a blaze of light, and falling back, like the notes of the lark, in a rainbow shower of tones, to be embosomed in the splendid sonority of the Low Middle resonance for the impassioned appeal in the final "arise" of the superb musical climax.

And this is but one of hundreds of beautiful song-texts to be found among English lyrics from the sixteenth century to the present day. The vocal resources of our language, long obscured by the very richness and variety of the English vowel scheme, are only just beginning to be appreciated. The composer and singer will find a simple solution of the problem offered by the volume and complexity of English word melody in the vowel music of our lyric poets.

Take, for instance, the Howells-MacDowell lyric analyzed on page 306. There is not in our language a more perfect example of characteristic English vowel music than the

text of this little song. "Shrewd," "fetch," "faint," "lonesome" (instead of the banal "lonely"), "threshold," and "cowers" are all masterpieces of realistic word-painting. That the composer is at his best here, as a song-writer, is due chiefly to the fidelity with which he has preserved the poet's vowel music as the basis of his own lyric work. This is particularly marked in his treatment of the difficult and characteristic *mixed* vowel resonances. Note the effective iteration of the word "faint" with the delicate *vanish* of its secondary resonance to indicate the diminishing sound of the horse's feet; the introduction of subtle *appoggiatura* for the almost imperceptible initial glide of the voice on the mixed *u* of "trem*u*lous"; the knell of the somber Back vowels in "on the lonesome threshold there"; and the dramatic climax provided by the shuddering, deep-toned wail of the mixed *ow* in "cowers."

Who, that has the ears to hear these things, can doubt the possibilities of English as a language of song?

V

THE VOICE SCALE AND THE MUSICAL SCALE

One built up a wall, and lo! others daubed it with untempered mortar. . . . When the wall is fallen, shall it not be said unto you, where is the mortar wherewith ye have daubed it?—*Ezekiel xiii, 10, 12.*

Correct intonation in singing is so far above all others the first condition of beauty that a song when sung in correct intonation, even by a weak and unpractised voice, always sounds agreeable. Whereas, the richest and most practised voice offends the ear when it sings false or flattens. . . . Notwithstanding the delicate distinctions in particular intervals, correct singing by natural intervals is much easier than singing by tempered intonation.

—Helmholtz (Ellis).

HERE then, in a word, is the singer's real problem. Whether his score be written in the simplest lyric measures or in the complicated harmonies of Wagnerian music drama; in the subtle dissonances and mystic whole tone modes of "Pelleas and Melisande," or the monstrous discords and stupendous

progressions of "Elektra," the crux of his art is to harmonize the word music of the poet and the tone music of the composer.

This task, sufficiently delicate in the simplest song, has been rendered increasingly difficult by the musician since the very infancy of music. Indeed, the vocal problem may be said to have originated in the loss of those mysterious "harmonies" by means of which the early Greek poets were wont to rhapsodize to the strains of the lyre and the substitution of the empiric "modes" or "keys" of Aristoxenes. Richard Strauss and his disciples are the direct lineal descendants of that "father of equal temperament" (see Note I, page 326), and the singer of to-day is the logical and inevitable victim of the Aristoxenean theory that "truth must yield to custom."

Whatever those forgotten "harmonies" may have been, there can be no doubt that the *enharmonic* intervals which composed them were intervals *in tune*, or *harmonious* in the full sense of the word as the Greeks used it—to uncorrupted ears. In view of the

results obtained by comparing the intervals of our modern musical scale with those of the great enharmonic organ, now, alas! relegated to the South Kensington Museum, it is quite in accordance with the eternal fitness of things that we have appropriated the noble Greek word ἁρμονία (harmonia) to express the principle of our present system of *tonality*, while our scale of musical intervals is called a "ladder" merely. Such use of the term harmony finds full justification in the results obtained in the "broken music" of concerted instruments at least. Certainly no lover of music who has been lapped into Elysium by the magic of Beethoven, Brahms, Wagner, or Debussy can doubt that the freedom of harmonic development permitted by our present system of notation furnishes a basis for infinite possibilities in *instrumental* music. It might even lead one to question whether the "music of the spheres" itself be harmonized according to exact mathematical calculations, as claimed by Pythagoras.

For the vocalist, however, the situation wears a different and more serious aspect.

"The singer who practises to tempered instruments," says Professor Helmholtz, "has no principle at all for exactly and certainly determining the pitch of his voice." This fact is, indeed, the chief cause and antecedent of his artistic woes. Nor shall it avail him aught to revive the classic squabble of the Pythagoreans and Aristoxeneans over mathematical and phonological divisions of the scale. For him, as Mr. Henderson says, "musical art was born in Italy" with the Ambrosian chant. If one takes but a step back of the four ecclesiastical modes he will find himself confounded by the contradictions of classical writers, and hopelessly astray in the bewildering maze of the seventy modes of the Ptolemaic system, not one of which is truly diatonic in character. The conclusion of Helmholtz, that our scale is "the result of artistic invention on which mankind has been at work for twenty-five hundred years since the days of Terpander," may inspire the hope of finding a solution of the problem in the tetrachords of that poet's seven-stringed lyre. How, then, is he to account for the ancient

Egyptians' flute in the British Museum, dating from 3000 B.C., which sounds the notes of a complete diatonic scale? Perhaps he follows this lure to the Orient, hoping to find in the third and quarter tones of Arabian and Persian music those missing links, the lost enharmonic intervals of the early Greeks. He may even emerge hence triumphant, upon the conclusion that the scale was evolved, through Oriental and savage song, from the natural intonations of the human voice in spoken language. In that case, how will he account for the performance of the ape or gibbon of Darwin, certified also by a skilled musician, Professor Owens, to have sung a complete chromatic scale with the ease and accuracy of a modern prima-donna?

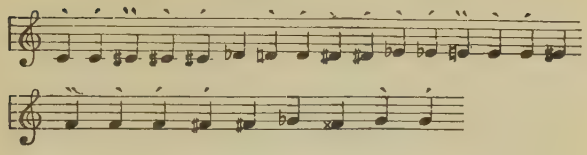
From this last ditch of humiliating inference we can only take refuge in the dictum of Walleschek, that we owe our musical scale, "not to nature (voice, laws of sound, or animals), and not to science or artificial systems that were worked upon and thought out for centuries, but to *compromise* between the physicist and practical players" (of modern

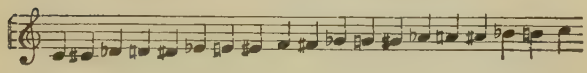
keyed instruments). However this compromise scale became what it is to-day, it is the inexorable fate of the singer that he can mount to his own meed of glory only by the rungs of this fixed and consecrated tone ladder. In ignoring the relation of this artificial musical ladder which regulates the pitch of the fundamental *tone* to the natural scale of the voice that regulates the pitch of the *vowels*, the vocal instructor creates the most formidable obstacle to his own success in guiding the steps of singers in their perilous ascent.

The delicate and difficult task of harmonizing the *enharmonic* music of the poet to the *diatonic* music of the composer is entirely ignored by the piano or organ tuner, to whom music means simply the music of his own instrument. The composer may also, and generally does, alas! disregard this phase of his own art. The singer does so, however, at a cost to his instrument as well as to his art which only those who attempt to sing the scores of Wagner or Strauss are beginning to realize.

If the vocal student wishes to understand fully this problem which makes the "placing" and cultivation of the voice a needless agony of years both to teacher and singer, let him construct a scale corresponding to the natural intervals by which the human voice moves in the subtle melodies of speech. It is a well-known fact that the ear can detect from fifty to a hundred intervals of sound in an octave. The range within which the voice plays in speaking, as calculated by the Greeks and confirmed by the experiments of the modern physicist and phonologist, is approximately a fifth of our musical scale. The intonations of this vowel music are not varied by definite intervals of tones and semitones, however. Its continuous gliding movement has a scale of finer and subtler gradations, or *enharmonic* intervals, corresponding to smaller fractions, thirds, fourths, fifths, or, according to Pythagoras, even eighths of a tone. Taking the average of fifths and, in case of the wider gaps of *equal temperament*, sixths of a tone as our vowel intervals, we have the following voice scale:

THE VOICE SCALE (in speech).



THE VOICE SCALE (in song).

THE (Tempered) MUSICAL SCALE.

It is, of course, impossible to sing all these enharmonic notes in succession; nor, even in its widest upward fifth of astounded interrogation or its most emphatic falling fourth of assertion or denial, does the speaking-voice pass through all its natural intervals. Herein precisely is cultured speech true melody. The voice chooses instinctively for its glides the scale of tones suited to express the momentary major or minor *mode* or mood of thought or feeling, its form of expression be-

ing thus in perfect harmony both with its ethical content and its esthetic values.

That the natural voice scale is also the *natural* musical scale has been repeatedly shown by the invention of keyed instruments containing a similar scale of intervals, especially the enharmonic organ built for Gen. Perronet Thompson. The scale of this wonderful instrument contains forty sounds to the octave. That this is, for all intents and purposes, the correct musical scale was indeed demonstrated by no less an authority than Professor Helmholtz,[1] by comparison of its tones with what he himself pronounced the just intonation of the Tonic Sol-fa singers.

"Voices when left at liberty sing justly," wrote General Thompson, "or as nearly as is consistent with previous exercises in trying to sing out of tune." And the Tonic Sol-fa singers replied, "Our voices and this instrument are friends; the others are our enemies."

And there, precisely, the singer of to-day finds himself. The great enharmonic organ

[1] *Sensations of Tone*, translated by Ellis, Ap. XX, pages 423–427.

has been relegated to a place among the curiosities of a London Museum. General Thompson's Utopian dream, that "the time cannot be far off when both singer and violinist will rebel against the obligation to perform out of tune to please the players of instruments with only twelve sounds to the octave," shall hardly be realized before the millennium of music. Then perhaps shall mortals' ears be gladdened with the immortal strains of the Ninth Symphony performed by perfect *enharmonic* instruments to the just intonation of a chorus of Tonic Sol-fa singers as Beethoven only has heard it in the silence of inviolate ears.

The singer of to-day must recognize the fact that the scepter has departed from the Judah of Song, and our Davids needs must tune their vocal lyres to the ubiquitous Philistine piano. Not only must the singer crowd all the subtle and exquisite tones of the natural musical scale into the twelve degrees of the modern chromatic ladder, with its treacherous gaps, and only one sound from such patent intervals as *f* sharp and *g* flat,

but, to make the problem simpler for the hand of the violinist, he must alter their natural succession and sing the lower *f* sharp of his voice-tones higher than the *g* flat above!

Nor will it avail him aught to rail at the incorrigible and invulnerable piano-tuner. From the links forged by that modest and patient Vulcan the composer has woven his marvelous chain of tonality, welded by a system of notation as inflexible as the laws of the Medes and Persians. That of all the forms of music the vocal art alone languishes within the impregnable "keep" of this superb harmonic structure is in part the singer's own fault. While he has been dallying on the pleasant outer slopes, satisfied to imitate automatically "by ear" the sounds of other instruments or voices with his own delicate natural instrument half tuned, the violinist, for example, by patient and intelligent mastery of the physical technique of bowing and fingering, has created for himself a compromise scale by means of which he mounts to *and beyond* the heights on which the piano-

player has been enthroned by the tuner in solitary majesty.

The singer needs only to emulate this intelligent precedent. In designing his vocal instrument Nature has been even more generous to him, indeed, than to the violinist. With the double mechanism of his wonderful dual instrument once in tune he has but to choose from his own richer voice scale the tones corresponding to the notes produced by the strings of his rival to mount, with the latter, to his rightful share in orchestral triumphs. Then when the composer plays his interminable chain through the exquisite and tortuous maze of enharmonic changes, and the young giant at the piano sits helpless in his equally tempered armor, the singer has naught to fear. He can soar on his dual pinions wherever the violins lead; provided, of course, that the composer has had the wisdom to gauge correctly the range and endurance of the delicate vocal instrument.

In regard to possible harmonic developments in vocal music that may follow such

precedents as "Elektra," nothing, of course, can be predicted. As to the part played by the ear in harmonizing such music, much has been learned but more assumed. Whether, as certain modern harmonists claim, that organ is so constructed as to transmit sounds to the brain as they should be heard, and not as they are actually given forth by the voice or other instruments, physiological psychology has certainly not yet proved. Nor is there anything in the higher psychology of James and Bergson to show that the cells of the brain or its sensory-motor regions are capable of transforming dissonance into consonance, and discord into harmony!

The only thing clearly demonstrated so far is that musical taste can be readily trained to prefer whatever the ear is accustomed to receive and convey to the listening mind. This no one can doubt who hears for the first time, after his ear has become habituated to the "sharped" sevenths and "flatted" elevenths of our artificial chromatic scale, the natural harmonies of a Swiss Alpine horn, or those of the more sophisticated philharmonic

variety before it has been manipulated into accord with the tempered scale of our modern orchestra.

Can the human voice, the most fragile as it is the most beautiful of all instruments, survive the strain of a similar process necessary for a logical harmonic development of the tones of our artificial musical scale? If so, can the stupendous intervals and monstrous progressions which may be legitimately developed from the fundamental discords permitted by our present system of tonality be adapted to the delicate human lyre without a sacrifice of the articulate vowel music of the text, and its poetic content?

The reply of inarticulate opera, which the public accepts as the highest type of the vocal art, would seem to be clearly in the negative. If articulate singing were confined to that branch of musical art this answer might be accepted as final—*in regard to opera.* There is, however, little more to be said for the diction of the average concert-singer, and as, happily, there are exceptional opera artists whose articulation is above reproach, it is

clear that there must be a satisfactory solution of the problem.

Science has still much to reveal, perhaps, but it has already made its supreme revelation for the singer—that the salvation of his art, as well as the preservation of his voice under the present ordeal and the possible future developments in vocal music, depends on his knowledge and control of the long-neglected half of his vocal instrument—the organs of articulation.

VI

THE VOICE-CHORD

> The viewless spirit of a lovely sound,
> A living voice, a breathing harmony.
>
> —Byron.

LORD BYRON'S apotheosis of the human voice as "a breathing harmony" is perhaps the most accurate as well as the most poetic description in all literature of that marvelous and beautiful phenomenon. Although its tones are received by the ear as concrete sounds produced in melodic succession, science has revealed the fact that in its passage through that complicated receiving-instrument each of these tones is resolved into a harmonic chord more or less complete and satisfying according to the number and strength of the *partial* tones of which it is composed.

Who that has learned to hear these subtle

and exquisite voice harmonies has not felt the resemblance of vocal tones to those of the violin or violoncello? There is, however, no instrument of man's creating to which the human voice can be justly likened. We have compared it to the bell, which also includes in a single sound a harmony of tones; but the chord of the bell is ever the same, while that of the voice can be modulated according to any conceivable mode of harmonic progression. Again, it has been likened, and more aptly perhaps, to the pipe-organ, because that instrument possesses both vibrator and resonators. The latter, however, are fixed and immovable in the organ, while the chief resonator of the voice, being capable of an infinite variety of forms and of combinations with the other resonators, permits the subtler variations of vocal harmony, which we term vowels, by means of which sound is articulated into speech or song.

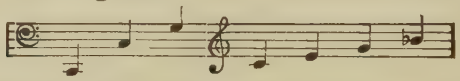
Although scientists have succeeded in combining artificial vibrators and resonators in such a manner as to produce sounds resembling different vowels, no *vox humana* combi-

nation has ever been invented that will add to organ-tones the true vowel *character* which gives to the human voice its unique and supernal beauty.

This unique quality of the vocal note is due in part to the fact that the voice is not a single instrument capable of producing a variety of tones, but two instruments combined into one, harmonizing two different varieties of music. When combined in one way, according to the intervals and movements of the voice in normal utterance, we have the simple music of speech. When the intervals are enlarged and the tone sustained so that the voice can move in bolder leaps and soaring flights of melody, this speech-music takes the form of song. Artistic, articulate singing, therefore, can be attained only through correct understanding of the functions of both parts of this dual instrument and intelligent control of their combined action. (See Note XII, p.333.)

First of all, the student must realize that his voice work is based on the principles of harmony as absolutely as instrumental music is. The basic principle of this science, as all

music students know, or should know, is the fact that every musical sound generates other sounds harmonic to, or "in tune" with, its own pitch. These partial tones or "harmonies" rise from the tonic successively in the following order:



This principle applies to the tones of the human voice more perfectly than to those of any other musical instrument. Any singer who has proper breath control, and can maintain a correct adjustment of the resonators above the larynx, should be able to produce these seven partial tones of the voice in regular harmonic succession. The writer has heard this done by Prof. J. F. Harford of the Royal College of Music at Manchester, England. While sounding the prime tone on the natural vowel, each of the six upper partial harmonic tones is produced successively with perfect accuracy of pitch, and a beautiful bell-like quality.[1]

[1] A gramophone record of this interesting vocal phenomenon is being made for the writer through the courtesy

Applying this principle to the sung vowel, we find that the *tonic* or fundamental tone of the voice-chord is the sound made in the larynx when the air is set into regular vibration by the resistance offered to the expiration of the breath by tension of the vocal cords.

The vibration producing this "prime" tone is instantaneously subdivided into three other vibrations in its passage through the pharynx or throat-chamber, the mouth or vowel-chamber, and the complicated resonators known in musical parlance as the "face-mask." This basic triad of tones will be indicated in the following pages as the *fundamental* or *cord tone*, the *vowel tone*, and the *resonant tone*. To these three primary tones are added a series of more delicate and elusive partial or harmonic tones generated in the resonators of the head and throat. This complete chord of tones produced simultaneously is merged on emission into a composite

of Professor Harford, and will be submitted to the Carnegie Institute for transcription, to be reproduced as a frontispiece for later issues of this work. (See Note XV, page 335.)

vocal tone which is conveyed to the ear of the listener as a single concrete sound. Professor Helmholtz has shown how the marvelously constructed mechanism of the human ear receives and resolves this composite sound into the original chord of tones produced by the voice.

The *volume* of vocal tone depends upon the amplitude of its composite vibrations. Its (sensible) *pitch* is decided by the rate or rapidity of the vibration of the fundamental tone. Its *resonance*, or carrying-power, is regulated by the strength of the sympathetic vibrations in the face-mask or the resonant tone. Its unique, *articulate* character is obtained from the mouth vibrations or vowel tone. In the production of this third and distinctive tone of the voice-chord, however, the law of vocal harmony differs from that regulating the tones of other instruments. The ever-varying shape and size of the vowel-chamber, by altering the magnitude and rate of the sympathetic vibrations aroused in this resonator, not only alter the character of the vowel tone, but give to it an individual and

ever-varying pitch which is sometimes harmonic and sometimes *inharmonic* to the tonic fundamental pitch. In this fact, so long and so strangely ignored by physicist, phonologist, and vocal teacher, we have the chief obstacle to tonal beauty in singing.

The experiments of Professor Helmholtz demonstrated beyond all question that the *timbre*, or musical quality of the vocal note, depends on the number and strength of the upper partial harmonic tones included in the voice-chord. Unfortunately we cannot manipulate the vocal apparatus as the physicist does the tuning-forks and resonators by means of which he analyzes musical sounds and ascertains the number of superposed harmonics. But nature conceals none of her operations from the patient inquirer into her marvelous phenomena. The simple expedients of *whispering*, *humming*, and *intoning* furnish a key to the riddle of the voice-chord.

The singer will find by correct application of the musical formulas given at the close of this volume that the full quota and strength of these harmonics, or *overtones*, so called, can

be obtained and maintained by combining the three primary tones of the voice-chord in such proportions as to harmonize the different pitches produced by the vibrations of the tonic or fundamental note and those of the vowel tone.

In order to gain this control of the complete voice-chord, it is necessary first of all that the student should learn to distinguish these three primary tones. This he can readily do by first *intoning* (see page 230) the vowel, then *humming* the resonant tone, and afterward *whispering* the vowel.

Let us suppose, for example, that the reader wishes to analyze the voice-chord of "middle" *c* sung on the Low Middle vowel, known in musical phraseology as the Italian *a*, the English *a* in *ask* (*not* the *a* in *art*). By closing the mouth during the emission of the complete vocal tone and thus suppressing the vowel tone, he will hear the fundamental tone continued as an inarticulate sound in the larynx, supplemented by a fainter *humming* sound in the head. By alternately stopping and unstopping the ears during a steady

emission of this hum, he will note that the vibrations in the head produce a distinct tone one octave above the pitch of the tone produced in the larynx.

Thus we have obtained two of the primary tones of the voice-chord, the fundamental or tonic, and its first harmonic, the resonant tone. As one is merely a partial tone generated by the reverberation of the other in a cavity of different size, they cannot be heard separately.

With the vowel or mouth tone, however, the demonstration is more complete. By closing the ears with the fingers again and whispering the vowel clearly in the front part of the mouth, the fundamental and resonant tones are both suppressed, and the vowel tone alone is heard. If the lower jaw is well relaxed, and the tongue kept in position for shaping the *a* chamber (tip well down at front and *no tension at the back*), we shall hear a faint but distinct musical tone with a definite pitch, *different from the pitch of the sung vowel.* If the position of the tongue be changed from that of *a* to that of *e* or *i*

(Italian), the pitch rises; if to that of *o* or *u*, it falls; and so on, according to the variation of the vowel character with the varying shape and size of the chamber. Nor is that the only vagary of the vowel tone, for its exact pitch depends also on whether the singer be man, woman, or child, and is further modified by the character of the voice. The mouth-tones of a barytone vary within a major third higher than those of a bass, while the vowel resonance of a contralto ranges within a minor third lower than those of a soprano.

If the whispered resonance of the (Italian) vowels *a*, *e*, *i*, *o*, *u* be now merged into a softly sung middle *c*, in succession, we shall note distinct intervals between the fundamental tone and the vowel resonances varying from a major fourth for *u* to more than two octaves for *i*.

Here, then, we have the three primary tones of the voice-chord: the tonic or fundamental tone, the resonant tone sounding the octave above, and a *free*, sympathetic vowel tone playing between or beyond, with ever-

varying character and individual quality, pitch, and color, all of which are independent of the characteristics of the fundamental note by which its vibrations are aroused.

When the student learns to enlarge the throat-chamber by means of the proper relaxation and expansion of the muscles of the pharynx, thus increasing the amplitude of the vibrations in that resonator, the *lower* harmonic partials are reinforced, giving to the voice that quality of resonance specified as *sonority*, which plays such an important part as the basis of tone-color.

Indicated in musical notation and played on the pianoforte, the natural triad of the human voice is unmusical and unsatisfying to the ear. This may be due partly to the fact pointed out in the preceding chapter that the true enharmonic intervals of the voice scale cannot be accurately indicated on keyed instruments tuned to equal temperament. The vowel may sound, for example, a true *f* sharp or a true *g* flat instead of the compromise key used for both tones by the piano-tuner. The chief cause of its unsatis-

fying musical quality, however, is the result of the incomplete character of the chord. The tonic or fundamental tone is not reinforced by the upper partial tones necessary to complete its harmonic character and thus give tonal beauty to the sung vowel.

The piano or organ player completes and varies the musical quality of his chords at will by striking the keys which add the tones necessary to preserve the harmonic sequence of the tonic or key-note. But how shall the singer add to each of his apparently concrete vocal tones the subtle and elusive upper partial tones necessary to complete the harmonic character of the voice-chord and thus insure the musical quality or tonal beauty which depends on the number and strength of these partials?

In the experiments previously mentioned, by means of which physicists have succeeded in producing, with a set of tuning-forks and resonators, sounds resembling vowels, it has been clearly demonstrated that the *number* of upper partial harmonic tones generated by a given vocal tone depends upon the *character*

of the vowel on which it is sung. According to Helmholtz, the largest number is obtained with the Low Middle vowel *a* (English *a* in *ask*), except on very high notes, which are richer in harmonics on the High Front vowel *e* (English *e* in *be*), the High Back vowel *u* (English *oo* as in *woo*) having fewer harmonics than any other vowel. (See Note XI, page 332.)

Since the character of the vowel depends solely on the shape of the mouth cavity, or resonator in which its vibrations are aroused, control of the *number* of these upper partial tones necessary to complete the vocal chord can readily be obtained through proper control of the organs of articulation. This may be fully demonstrated by any singer who will apply the Helmholtz law, according to the *Willis* theory of vowel resonance (see Note VII (b), page 330,) and the Bell system of vowel formation. This may be done by means of the point of mechanical advantage in the action of the tongue indicated in the writer's previous work on *The Technique of Speech.*

This, however, only solves the singer's problem in regard to *articulate* diction. It enables him to sing any vowel on any pitch within the natural range of his voice, and thus rescues the word and its poetic content from oblivion. It does not, however, always insure tonal beauty *per se*. By means of vigorous articulation many singers are enabled to make every word of a song perfectly distinct to a large audience without attaining any great degree of tonal beauty, even if, as often happens, they do not lessen the same in the process by interrupting the flow of the resonant tone.

By referring again to the Helmholtz law the reader will note that this musical quality of a vocal tone depends not only on the number, but the *strength* of its upper partial tones. It is evident, then, that, while they may be present, unless they are strongly reinforced *in proportion to the volume of the fundamental tone*, the voice-chord still remains weak and unsatisfying to the ear.

Furthermore, we must not forget that the vowel tone may be *inharmonic* to the tonic,

and thus leave the chord, even when complete, harsh or dissonant to the ear. By what magic readjustment of the threefold cord of vibrations producing the primary tones of the voice-chord can the singer strengthen sufficiently all the upper partial tones reinforced by the vowel, and at the same time harmonize the different and ever-varying pitches of that vowel tone and of the tonic or fundamental tone?

A glimmer of light was thrown on the subject by Professor Helmholtz in the statement that if there are only odd-numbered partials present in the voice-chord the tone will be *hollow*, and if these are too strong it will be *nasal* in quality.[1] Here, unfortunately, the great physicist leaves the subject.

In experiments with singers for the purpose of obtaining perfect co-ordination of the processes of articulation to the processes of phonation, it was found, by testing the presence and strength of the partials by means of the responses obtained from the strings of a

[1] *Sensations of Tone*, Ellis, page 119.

closed upright piano, that when the vibrations of the fundamental sound made by the vocal cords are too strong in proportion to the other two primary tones the complete vocal tone has the hollow quality referred to.

This quality can, of course, be modified, as nearly all modern vocal teachers have found, by strengthening the vibrations of the resonant tone with *humming*. The result of this modification, however, while increasing the resonance and carrying-power of the tone, is equally certain to produce the nasal, somber quality noted by Helmholtz *unless the vowel tone is proportionately strengthened.* This may be readily accomplished by alternately whispering and intoning the vowel.

Unfortunately, this alternation of the fundamental and vowel tones, by continuously deflecting too many of the vibrations of the former into the mouth cavity, again weakens the resonant tone, causing the complete vocal tone to fall back upon the other horn of the dilemma, the hollow quality resulting from excess of fundamental tone modified by vowel resonance only.

The attempt to prevent this and secure proper balance of the vowel and resonant tone by alternately whispering and humming proves equally futile. In humming, the vowel tone is entirely suppressed; in whispering, it is impossible to arouse the resonant tone; hence it is impossible to synchronize or establish between them the regular *to and fro* of a pendular vibration necessary to merge the two sounds into a unit of vocal tone.

There remains, however, one more possible order of adjustment of the primary tones, and happily one that solves every difficulty involved in the co-ordination of articulation and phonation in singing. If, after the mouth vibrations have been adjusted to those of the fundamental tone by alternately whispering and intoning the vowel, the resonant tone is immediately reinforced by a *crescendo* hum, all the harmonic upper partials generated by the tonic *on that particular vowel* will be proportionately reinforced. The result in opening again on the vowel will be a complete, articulate vocal tone of perfect *timbre* or a perfectly harmonized vowel.

This result is readily explained by a principle of acoustics which has been practically ignored in the study of diction and phonetics, and of which vocal instructors, with a few eminent exceptions, have only partially availed themselves *through neglect of the vowel tones*. The hollow resonators of the head and face-mask receive and harmonize the enharmonic intervals of the vowel tone and the diatonic intervals of the fundamental tone as the vaulted spaces of a cathedral, pulsating with the harmonics generated by the tonic of an organ strain, receive the inharmonic or faultily intoned "close" of a choir of voices and transform its "dying fall" into a perfect harmonic triad.

This part played by the cathedral in the music of its choir depends solely, of course, on the acoustic properties of the structure. In the case of the complete vocal tone, the delicate task of harmonizing all the tones of the voice-chord depends also on the singer's ability to regulate the size and shape of the mouth resonator as well as its adjustment to the fixed vaulted chambers of the head and face-mask.

When by proper co-ordination of the processes of artistic breathing and articulation the singer is able to maintain this perfect adjustment of the three vibrations producing the basic triad of the voice-chord on any vowel, the full complement of its upper partial tones is added and reinforced, transforming the vocal tone into a perfect *vowel harmony*. As these exquisite and elusive harmonics spring into being the ear of the listener is ravished by a vocal phenomenon corresponding to coruscations of light such as Browning evidently had in mind when he penned the impressive lines in "Abt Vogler" which may be applied to the production of the ethereal voice harmonies of the singer as truly as to the harmonized tones of concerted instruments:

Here is the finger of God, a flash of the will that can,
Existent behind all laws; that made them and lo! they are.
And I know not if save in this, it be allowed unto a man
That out of three sounds he frame, not a fourth sound, but a star.

—Robert Browning.

VII

THE VOICE SPECTRUM

Consider it well, each note of our scale in itself is naught.
It is everywhere in the world, loud, soft, and all's said.
Give to me to use. I mix it with two in my thought,
And there, you have heard and seen. Consider and bow the head.

—Robert Browning.

WHEN the voice-chord is complete and can be sustained on each note of its normal compass with the primary (Italian) vowels, the student has secured the first requisite of the vocal art, musical quality, or *timbre*, on such words as happen to be spelled with these vowels.

Until the range of these *vowel harmonies* has been extended to include the complete vowel-gamut of one or more languages, however, this tonal beauty remains a thing of shreds and patches, leaving a sense of incompleteness, tantalizing to both singer and listener,

of something gained only to be lost, heard but in vanishing from the voice. Only when the singer adds to this seven-toned vocal lyre the full complement of "shaded" strings—those delicate chromatic or enharmonic *nuances* of vowel resonance which enable him to express intelligently and articulately in musical tones the thought-content of the poet's text—does he become master of the art of song.

Again, even when he has attained articulate tonal beauty his singing will still lack the ultimate charm of emotional appeal, until his technical skill in combining and varying the relative values of the three primary tones of the voice-chord is such that he can irradiate and illumine the sung word with the subtler quality which for lack of a distinctive term we indicate by the borrowed word *color.*

The German usage of *Klangfarbe*—or "clang-tint," as Tyndall translated the word —to indicate *timbre* or musical quality has created a deplorable confusion in the public mind on this subject. Fortunately for English singers, Tyndall's borrowed term has not become current. An almost equal perplexity

has been created in the mind of the vocal student, however, by the careless, interchangeable use of the words *timbre* and *color* in the musical shibboleth of the present day.

This habit is due chiefly to vagueness of thought in regard to the intrinsic characteristics and functions of the vowel and disregard of the actual relation of the word to musical tones in singing. A clear and definite understanding of this subject is of great importance to singer and speaker alike. Therefore the student whose aim is toward the approximate perfection possible to any art should fix in his mind the following distinctions.

Timbre—a valuable word adopted from the French language, for which our own offers no satisfactory substitute—as used by musicians and well-informed speakers, refers solely to the *musical* quality of a sound. It is characteristic of the voices of animals and birds as well as of human beings. It may be even more marked in an instrument of wood or brass. It is heard in the tone of a bell, the siren of a motor-car, or the mere tinkle of

crystal drinking-glasses. It is due to the *form* into which the complex mass of vibrations in the air are merged, in composing these musical sound-waves.

The peculiarly beautiful *timbre* of the human voice is, as we have seen in the previous chapter, the result of a certain proportion and adjustment of the three primary tones of the voice-chord. Its supreme distinction is due to the articulate character given to this composite vocal note by the ever-varying form of the vibration producing one of these primary tones, that which we call the *vowel.*

This living, vibrant soul of the vocal word is further distinguished by a third and entirely different quality due to the varying phases or relative position of the vibrations in the vowel-chamber. As the angle of inclination varies with the movements of the organs of articulation, the vowel resonances undergo exquisite and elusive changes which we instinctively liken to the phases of light-waves which we term color. When there is a forward inclination of the tongue, as in the High Front vowel *e* in *be* or the Low Front vowel

a in *as*, keeping the vibration well to the front of the mouth, the result is a resonance brilliant or bright in sound or "light" in color. As the line of inclination veers backward with the recession of the point of resistance in the muscular action of the tongue in shaping the vowel-chamber the resonance becomes more somber or "darker" in color—as in the High Back *oo* in *woo*, the Mid Back *o* in *so*, or the Low Back *o* in *on*.

On the same principle the middle vowels, such as the High Middle *e* in *tell*, and all the variations of the Mid Middle or *natural* vowel, as in *her*, *third*, *love*, *sun*, etc., are more or less dull or neutral in color.

All the mouth resonances can, of course, be further modified or "shaded" by the action of the lips or veil of the palate. The Front vowels, for example, may all be thus made more or less vivid or delicate in *nuance*, but they remain essentially bright or light in color. Similarly, the Back vowels become more or less somber according to these extraneous modifications, but remain intrinsically "dark" in color.

In the case of the Middle resonances especially the effect of the angle of inclination of the vibrations in producing these color phases without altering the *character* of the vowel sound is perfectly demonstrated by the fact that these resonances may be made brilliant or somber, dark or light, at will, by tilting the angle slightly forward or backward without altering the point of muscular *tension* at all. This variation of color phases is most marked in the Low Midde *a* in *ask* (the Italian *a*). Because of its unique point of vantage at the lowest and most central point of the vowel-chamber it may be shaded through a complete scheme of color from the most brilliant to the most somber *nuances*.

These shades of vowel resonance, however, are only a part of color phenomena of the voice. The two *inarticulate* tones of the basic triad of the voice-chord are also characterized by color, but of a different *kind*. Tone-color, indeed, bears the same relation to vowel-color that the *atmosphere* of a landscape bears to the colors of the objects seen through

it. How often painters give us a landscape perfect in drawing and in composition, and apparently as perfect in its scheme of colors, which yet lacks this ultimate charm of atmosphere! Even Turner, past master of this art among the painters of the world, has given us two pictures of Venice, now in London, in one of which the Bride of the Sea seems to swim before the vision through the delicate veil of her own ineffable atmosphere, while the other, equally superb in its essential color scheme, simply shouts at the beholder that it is merely a painted canvas.

Exactly the same phenomena are repeated in the art of singing. A voice may be perfect in *timbre*, with a scheme of vowel resonance so rich and varied that the singer is able to deliver the text of his song intact and phrased with every subtle *nuance* of the poet's thought, yet its message may fail to touch the heart or move the feelings for want of this impalpable *aura* of tone-color.

On the other hand, there are voices, not a few, among the purely temperamental singers,

exceedingly rich in this indescribable charm, yet so weak and limited in vowel color that all the outlines of the latter become hopelessly blurred by the excess of tone color, and the poet's words and thoughts are both lost in an inarticulate welter of emotional expression.

In order to avoid confusion of thought on this subject the student must first bear in mind the fact that vowel color, like the vowel itself, is a characteristic peculiar to the human voice. It is a medium for the expression of the different phases of intelligent thought. Trevelyan, in the *Life and Letters of Macaulay* (Vol. I, xvi), refers to the work of "novelists who have more color in their vocabulary than Turner had on his palette." Being the result of physiological modifications of the vibrations through the action of the organs of articulation, it can be brought directly under control of the conscious will.

In tone-color we have a more elusive and sensuous quality, equally characteristic of the voices of men and of animals. The voice of the dog, for example, is specially rich in tone-

color.[1] Esentially emotional in origin, this subtle *aura* of the voice can only be brought indirectly under control of the conscious will. The psycho-physiological problem is the same as in the case of control of *timbre* or musical quality. We have already seen that while the capacity to *perceive* and regulate the *timbre* of the vocal tone depends on the degree of *musical sense* with which the singer is endowed, or which he has developed, he is able to secure actual technical control of this musical quality by regulating the proportion and adjustment of the three primary tones of the voice. The same principle applies to tone-color. While its inception depends entirely on whether the singer has the capacity to feel or the imagination to simulate emotional states of consciousness, technical control of the expression of these emotional states may be gained through modification of the vocal tone obtained by increasing the amplitude of the vibrations in the *throat-chamber*, thus add-

[1] A most artistic use has been made of this fact by the London actor who played the part of the Dog in Maeterlinck's "Blue Bird."

ing sonority to the variations of the vowel-tone and the resonant tone. Here we have the distinction between *timbre* and tone-color. The vibrations made in the larynx play no part in the delicate *aftermath* of tone-coloring, *per se*, which takes place entirely in the resonators. If the fundamental tone could be heard as it issues from the vocal cords, before being modified by the vibrations made in the resonators above the larynx, it would be as devoid of this—or any beautifying quality—as a ray of light is of apparent color before it enters the solar spectrum.

That there exists some actual correspondence between sound and color the physicist has long ago demonstrated. Light, in the form of electricity, has not only been converted into sound by the telephone-receiver, and transformed into music by means of an instrument invented by Dr. Cahill, of Oberlin, Ohio, but an "organ" has been exhibited in London which translated the tones of a piano into color. What actual relation the colors thus produced bear to the tones arousing them

does not seem to be very clear as yet. It would appear from our present knowledge of the subject that they could only be the colors of remote harmonics of those fundamental tones, since the vibrations of light-waves in the ether (so called) are so many times more rapid than those producing sound-waves in the denser medium of the air. We know, for example, that middle *c* is the result of sound-waves traveling at the rate of two hundred and sixty-four per second, while the rate of red, to which it is said to correspond, is, according to Professor Barrett,[1] four hundred and fifty-eight millions of millions. We also know, however, that sound travels with much greater rapidity in the form of electrical waves. Is this increase sufficient to overcome the difference entirely and give us the actual color of middle *c* or only the "mean" shade for a common ratio?

Again, what of the fact that the eye can perceive only a single "octave" of seven colors, so to speak, while the ear is capable

[1] *Light and Sound Quarterly Journal of Science.*

of hearing eleven octaves of tones? Certainly there appears to be little hope of realizing the pretty dream of translating the seven tones of our artificially tempered musical scale into the seven colors of the solar spectrum. Which of these sounds is the tonic of the *natural* gamut of musical tones? What, indeed, is that fundamental sound, the ground tone of nature, which, once ascertained, would enable man to calculate the key-note of the very "music of the spheres"? Who knows what it was that Pythagoras thought he knew? There is a tradition that this natural fundamental musical pitch was known in China in dateless antiquity, but investigation only reveals the name of some (mythical?) personage who discovered it—or thought he had. What the tone was, however, China knows to-day as little as we do.

Is the *diapason normal* the classic *a* of Greece; and is that classic pitch the *f* of to-day, or the *c* of the *concert pitch* of our present musical art? Again, what is the *correct* "concert pitch"? Is it the French *diapason normal*, the Continental, Inter-

national, Philharmonic, English, or American rate of vibration? Who shall decide when tuners disagree? Especially when they utterly disregard the "diapason normal" of the only instrument which possesses a *natural* scale of musical tones—the human voice?

In any case, it can be safely postulated that in this natural instrument alone can be found the secret of the law regulating the relation of color to musical sounds. It seems equally probable that this will be done through the medium of electricity by means of gramophone records of the singing-voice.

Meantime, while awaiting more exact exposition and demonstration of these laws in the domain of physics, let the student beware of being lured afield by the Fata Morgana of *audition colorée* hovering on the musical horizon. That there are people who do actually see colors when they hear musical tones is a fact too well authenticated to be disputed.[1] It is, however, equally well authenticated that the phenomenon is purely pathological or else due to congenital mal-

[1] *L'Audition Colorée*, F. Suarez Mendoza, Paris, 1890.

formation of the eye or its annexes. Théophile Gautier succeeded in throwing himself into the state of nervous excitement necessary to induce these abnormal sensations by taking large quantities of opium. Professor Benedickt,[1] of Vienna, has severely condemned all experiments and tests in regard to these false secondary sensations of color as absolutely injurious to the nervous system and dangerous to health. That such data are not only inaccurate but useless is shown by the fact that among the seventy-seven cases out of five hundred and forty-nine tabulated by Bleuler twenty-seven different colors or shades of color were assigned to the vowel *a*, ranging all the way from black to white through every conceivable hue! What value had the testimony of Louis Elert as to the color scheme of Schubert's Symphony in C Major when Joachim Raff's statement that the sound of the flute is an intense sky-blue is contradicted by Leonard Hoffmann's testimony that it is a bright red?

[1] Benedickt et Neiglicke, in *Le Progrès Médical*, Paris, about 1889.

What could it avail us, indeed, to see the exact shades of vowels or tones? No great vocal artist has ever testified to any benefit to his art through congenital or acquired ability to visualize the color of the voice. In any case, the time and thought of the student can be far more profitably spent in the effort to gain technical control of the vibrations of the voice producing the phenomena of tone and vowel color. When this has been done the singer will find that his powers of expression and interpretation are no longer limited to the vague, capricious, elusive resource of *temperamental* inspiration alone. For example, let us suppose that such a student has been given the part of Fides in *Le Prophète* to learn, and is told to study and imitate Madame Schumann-Heink's incomparable interpretation of that moving rôle.

Could the greatest expert in the psychology of singing tell her how to "feel," temperamentally, what that great artist feels when, for instance, she voices the poignant cry of the agonized mother-heart in the *aria*, "O, mon fils?" We have, however, excellent au-

thority for believing that if the student will study and imitate the physiological modifications of the vibrations of the voice by means of which the artist expresses the emotions which "color" her tones, the sensations thus induced will set up psychological reflexes corresponding to the emotions of which, in the first instance, those sensations would be the natural result. Is not this, in fact, the very secret of the mystery of artistic interpretation in all dramatic or vocal art?

It is certain, as Mr. James says, that this "esthetic sphere of the mind" has been too long neglected by empirical psychology for the volitional and perceptive parts. It is not necessary to go to the whole length of the implications that "we are sorry because we weep, merry because we laugh," etc., in order to realize the artistic as well as the ethical value of Mr. James's practical and lofty "pragmatism."

For example, the student who has learned to distinguish and control the sympathetic vibrations of the voice in the resonators above the larynx will note the artistic use made by

Madame Schumann-Heink of the *resonant tone* in attacking the first word of the phrase "Ach! mein Sohn" as a deep resonant sigh, breathed out on the *upper* stream of the vocalized breath, and rescued from the slightest trace of nasality by the clear sibilation of the aspirate (ch) closure, on the lower, vowel stream. Again, she will note how this high resonance is maintained through the downward *portamento*, and renewed in the resonant *m*, through which the voice sinks to the somber *ei* of the low-toned, yearning *mein*. Above all, she will mark how the resonance takes on the quality of *sonority* due to the lower partial harmonic tones aroused by the increased amplitude of the vibrations in the throat-chamber, secured through expansion of the muscles of the pharynx for the deep-toned *o* in *Sohn*.

Thus we see that while the throat-chamber plays a most important rôle in the production of *tone*-color, it is but one of the three facets of the vocal spectrum, regulating the color phenomena of the voice, the other two being the vowel-chamber and the face-mask. In

fact, the shape and size of this throat-chamber being, to a great degree, regulated by the movements of the tongue in shaping the mouth pharynx, the lower partial tones are so closely related to the vowel resonances that vowel-color becomes the actual basis of tone-color.

Indeed, as we have already seen, the supreme beauty and distinction of this tone-color in the human voice is due to the fact that the mouth resonances are articulate, adding to the vague emotional *aura* of resonance and sonority the living, changeful radiance of vowel-color.

Among modern singers we have had two, Madame Lehmann and Madame Ternina, whose art combined vowel and tone color in marvelous balance and proportion. Who that has heard Ternina's interpretation of Brunhilde's immolation did not share that sudden illumination of the inner vision depicted so vividly in the tonal word painting of the single phrase: "Alles, alles, alles weiss ich. Alles ward mir nun frei!"

"You have heard and *seen*," says Robert

Browning, in writing of the "color" of orchestral music. With how much more of wonder and reverence should we "consider and bow the head" before the music of the human voice, when through the ineffable atmosphere of its translucent tones are seen, by the inward eye, the central fires of the poet's thoughts, glowing with the celestial "light that never was on land or sea."

VIII

THE PLACE AND FUNCTION OF THE WORD IN THE INTERPRETATION OF THE FIVE PRECEPTS OF THE ITALIAN VOCAL TRADITION

The inventors of Italian opera held, with the Greek philosopher Plato, that, of the three components of music, speech was first in importance, rhythm second, and melody third.—W. J. HENDERSON.

THERE is no subject of general instruction so shrouded in esoteric mystery as that of voice culture. Students of the other arts and sciences are given definite principles and laws, and definite rules for demonstrating the same. The architect has an exact mathematical formula for calculating the curve of his dome and obtaining the soaring grace of his arches; the astronomer, for weighing the planets and tracing the course of the stars; the painter can explain how he secures his

effects of light and shade, color, form and perspective; while the piano, flute, or violin player has definite, technical means of producing from his instrument the musical harmonies that result from the application of the laws of sound. The vocal teacher alone officiates before a veiled altar inscribed with vague traditional precepts, the measure of his success as an instructor depending upon his individual interpretation of this Delphic ritual.

Many books have been written in many languages in interpretation of these vocal mysteries; but, when all has been said, the sum and substance of these more or less cryptic utterances seems to have been completely epitomized by the early Italians in the "five precepts" of the *bel canto* tradition. That they contain the whole of the art of tone-production, so called, no one can doubt who has investigated the subject in the light of modern scientific discoveries regarding the human voice. The singer who can "sing on the breath," "place the tone forward," "keep the throat open," "support the tone" prop-

erly, and who has, withal, learned how to "listen and imitate" correctly, has, indeed, mastered the art of singing.

Unfortunately, however, none of the precepts contains a word of instruction as to just *how* any one of these five necessary things is to be done. Nor, we may add, is such an explanation possible as long as the art of singing is considered the art of producing mere musical sounds with the voice. As well try to explain the structure of a Gothic cathedral by describing its architectural features and sculptural adornments.

Approaching the subject from a different field of investigation than that occupying the attention of the voice-builder—the study of resonance in its relation to the art of *speech*—the student finds himself behind this veil, in the very holy of holies of the shrine before which the vocal teacher officiates. Here, on every side, forming, so to speak, the very bones and sinews of the tonal structure, stands revealed the ignored and naked *word;* and inscribed on the corner-stone the sixth

and basic precept, already referred to as the proverb of Pacchiarotti:

Chi sa parlare e respirare, sa cantare.

We have already seen how this important precept fell into disuse among the Italians through the very simplicity of their language and the musical character of their speech. We have also seen how the discoveries and demonstrations of the scientist in regard to the vibrations of the human voice have restored to the ancient adage its original and literal significance. Here, as in that magic intermediary inscription on the ancient Rosetta stone which has enabled scholars to translate the strange hieroglyphs of forgotten Oriental languages, we have the missing key to the mystic text of the time-honored Italian vocal traditions.

"SING ON THE BREATH"

This brief phrase is perhaps the most vivid and accurate description of perfect singing that has ever been formulated. Even the uninitiated recognize in it the qualities that

distinguish the tone-production of the true artist from that of the amateur. But, alas! it merely defines the *character* of the tones rather than the process by which they are produced—the quality of freedom and buoyancy suggestive of the soaring flight of birds, the vibrant poise of butterflies on the wing, or the floating of fragile bubbles on the invisible currents of the air. Such definitions might be multiplied indefinitely without throwing any light upon the means by which this exquisite poise and control of the voice is gained.

Now let us apply to this mystic phrase the touchstone of speech. Let the student remember that he sings not only tones, but words as well. However he may mouth or mumble, gabble or garble them, he must, if he sings at all, sings words, or else he is merely shouting, shrieking, howling, wailing, crooning, or, at best, humming. At the magic open sesame of *the word* the veiled portals of the art of song open wide, admitting us to that fairyland of modern times, the scientific laboratory. Here, under the guidance of Dr. E.

W. Scripture, we may see the strange hieroglyphs made by the vibrations of the speaking-voice. When the first of these records of *American Speech Curves* [1] is placed under the gramophone one hears the ballad of "Cock Robin" in straightforward Americanese. (Fig. 2.) Another repeats the polished periods of the famous speech made by Mr. Depew on Forefathers' Day. Finally, most wonderful and precious of all, one hears again in the familiar quips and quirks of Rip Van Winkle's merry toast the now silent voice of our great dramatic artist, Joe Jefferson.

Having found thus that we are no longer dependent upon the testimony of the ear alone for knowledge of the voice, we follow the lead of the eye and pass on to the records of the singing-voice, which lay bare the very heart of the vocal mystery, revealing the fact that *the curve of the vowel tone is not decided by the curve of the fundamental tone.* As long as the singer sings the same vowel the *vowel curve* remains the same, however the

[1] *Researches in Phonetics*, Carnegie Institute Publications, Washington, D. C.

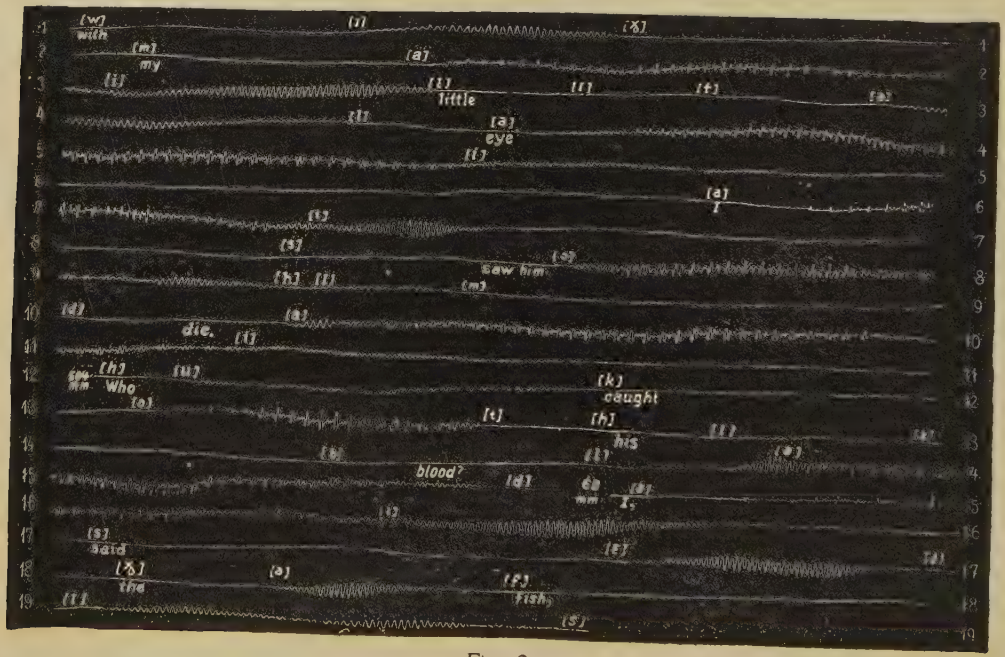


Fig. 2

PART OF "COCK ROBIN": 6.5 SEC.

Vowel curves from Dr. E. W. Scripture's record of "American Speech Curves"

curve of the tone may change with the variations in the pitch of the different notes sung on that vowel; and, *vice versa*, the curve of the vowel alone changing when more than one vowel is sung on the same note. The same is true of the spoken vowel. Take, for example, the records made of Dr. S. Weir Mitchell's exclamation "Oh!" on different speech-tones.[1] Note how, with the same vowel curve, the tone curve varies for each phase of feeling, expressing wonder, admiration, interrogation, etc. (see Fig. 3, facing p. 182). Here we have absolute visible proof of the Willis-Herman theory that the vowel is a *free* vibration made in the mouth which, though *aroused* by the vibrations of the fundamental tone, is independent of the same both in character and pitch. This fact gives us the key to the first precept:

If the free vowel vibrations made in the mouth be articulated into words by deft and skilful consonant processes, WITHOUT INTERRUPTING THE FLOW OF THE RESONANT TONE, *the continuous line of vibrations furnished by*

[1] *Researches in Phonetics*, pp. 63 to 65.

that resonant tone will FLOAT *the vowel tones as long as the fundamental tone is properly supported by the breath. The result will be the exquisite poise and flow of the voice known as "singing on the breath."*

"PLACE THE TONE FORWARD"

The first step in the study of singing is the process known as "placing the voice." This is, indeed, the singer's Rubicon. Until the voice is "placed," further progress is worse than useless. Every effort to develop its volume, extend its range, or increase its flexibility before this correct pose is secured is absolutely detrimental not only to the delicate vocal cords, but to the *timbre* of the voice itself. Just how this pose is best obtained is the point over which vocal teachers chiefly disagree—the very bone of contention throughout the profession. There are, indeed, almost as many methods of "placing the voice" as there are vocal teachers.

However they may disagree in regard to the technical process, all are agreed on one

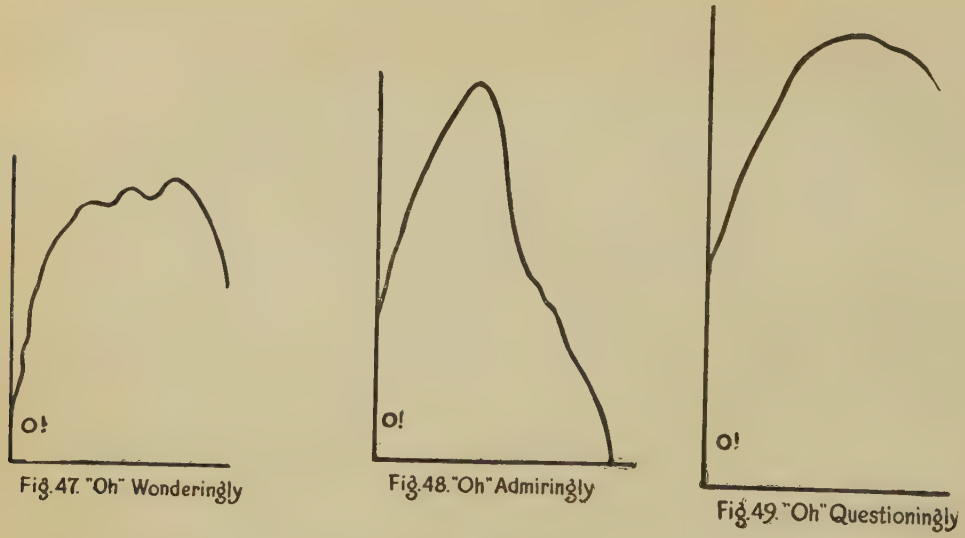


Fig. 47. "Oh" Wonderingly

Fig. 48. "Oh" Admiringly

Fig. 49. "Oh" Questioningly

Fig. 3

FROM DR. SCRIPTURE'S RECORDS OF DR. WEIR MITCHELL'S VOICE VIBRATIONS, SHOWING VARIATIONS OF THE *TONE* CURVE ON THE *SAME VOWEL*

point, that the tone must be placed *forward.* Here again opinion diverges, alas! as to just where this forward point is. One says "between the eyes"; another, "at the lips"; others, "on the teeth," or "against the hard palate"; while some soberly demand that it shall be placed "in the nose," although the latter evidently refer to the resonating cavities called "*la masque*" by Garcia and the French school. That an important *part* of the voice is produced by the vibrations in these resonators no one longer doubts. Let the student remember, however, that this resonant tone is not a *complete* vocal tone until the vowel vibrations are added to it. If the mouth vibrations are weak, and those of the resonant tone too strong, the vocal note will have a nasal quality; but vowels cannot be placed "in the nose"—or "between the eyes" (let the student close the mouth and try)—or anywhere, in fact, but in the mouth, or vowel-chamber, where they are produced. "*Placing the voice,*" indeed, is simply *placing the vowel,* or the process of adjusting the free vibrations of the vowel to the vibrations of

the resonant tone before the full force of the breath-blast is brought to bear upon the fundamental tone. Only thus can the voice be enriched with its full quota of higher and lower *partials* necessary to perfect *timbre*, since, as we have already seen, these subtle harmonics, which can rarely be detected by the ear in the complete vocal tone, can only be reinforced by a proper proportion and adjustment of the vowel tone, the resonant tone, and the fundamental tone.

All sound vocal methods are based on some effort to secure this ideal adjustment. As the Italian language has the simplest vowel scheme—only (as sung) seven resonances—and fewer consonant closures to check the vowel vibrations, the Italian method has proved the most successful in the majority of cases. Here, then, is the key to the second precept:

If, while directing part of the vibrations of the fundamental tone into the resonators of the head and face-mask to produce the resonant tone, the vibrations of the vowel be kept in the front part of the mouth by correct positions and movements

of the organs of articulation, especially the tongue, the result will be a perfectly forward focus or "placement" of all the vibrations contained in the composite vocal note.

To the degree that this perfect adjustment can be maintained with every vowel on every tone in the compass of the singer's voice, to that degree—*and that degree only*—is the singer's voice "placed."

"KEEP THE THROAT OPEN"

The wording of the third Italian precept proves that the early masters also recognized the tendency to tighten the muscles of the throat in singing regarded by modern vocalists to be the chief obstacle to be overcome in securing a proper emission of the voice. That the difficulty has increased with the adaptation of the vocal art to other languages more complex in structure than Italian cannot be denied—and this fact alone should be sufficient proof that it is due to the effort to adjust the processes of articulation to the *discrete* movement of the voice in singing.

Any conscious effort to relax the throat

only causes the muscles to contract or stiffen the more, as the natural result, indeed, of directing the attention to any muscular mechanism the normal action of which is *entirely* subconscious. After many years of research and experiment devoted to study of this and other phenomena of articulation in singing, the writer has proved to her own satisfaction and that of her students (among whom are numbered pupils of almost every noted vocal teacher in Europe) that this tendency to tighten the throat is due to the wrong use of the *extrinsic* muscles of the tongue.[1] Only in rare cases of a perfect, natural adjustment are the *intrinsic* muscles of the tongue, which alone are used in normal speech, sufficiently strong and flexible to sustain the processes of articulation in the more open position of the mouth required for full-tone production in singing. Consequently the singer brings into action, involuntarily, the *extrinsic* muscles, with the inevitable result of stiffening the

[1] The muscles attaching that organ to the larynx, the pharynx, and the soft palate. See *The Technique of Speech* (Harper & Brothers).

larynx, and also the back of the tongue, which forms the front wall of the throat.

In the preliminary work referred to above the writer has shown how the intrinsic muscles of the tongue may be readily trained to perform their proper functions of articulation in singing, as in normal speech, without throwing any strain upon the muscles of the larynx or the pharynx. In no case among her own pupils has this training, when faithfully adhered to, failed to relieve the singer or public speaker of any tendency to tighten the throat with the consequent sense of fatigue, while at the same time perfecting the processes of articulation for a clear, distinct, and resonant enunciation of the words.

Furthermore, when this proper control of the intrinsic muscles of the tongue has been obtained the singer finds that he is also relieved of any need to make a sudden change in the adjustment of the larynx in order to avoid a "break" between the so-called "registers" of the voice. This relief is due to the fact that all strain has been removed from larynx, pharynx, and *velum* or soft palate,

which when left free to perform their proper functions regulate subconsciously the adjustment of the mouth pharynx to the resonators of the head according to the action of the tongue. The proportion of the vibrations in the various resonators is thus regulated naturally according to the pitch of the fundamental tone, changing the character of the same gradually from what are known as "middle" tones to "head" tones and "chest" tones, so that the voice remains even in quality and equal in *timbre* throughout its entire compass.

In short, *when the organs of articulation are properly trained to perform their normal functions in singing, without any strain upon the extrinsic muscles of the tongue, the singer will be able to "keep the throat open" as easily and naturally while vocalizing as in normal speech.*

"SUPPORT THE TONE"

No one of the five precepts has been more obscured by tradition, or leaves the student in more hopeless perplexity as to its exact

meaning, than the shibboleth "support the tone."

That some sense of muscular support for the vibration of the voice is necessary in order that the singer may sustain the tone with steadiness, and increase or decrease its volume at will, all are agreed. One other point should be equally clear—that this support must not—indeed *cannot*, without eventual injury to the voice—be obtained from the muscles of the throat, since it has been established beyond all question that the action of the larynx and throat muscles is automatic and cannot be consciously controlled. However this subconscious action may modify, check, or retard the vibrations of the voice, it is certain that the column of breath which arouses and sustains the fundamental tone can be *consciously* controlled only through the action of the muscles controlling the diaphragm. Experiments and researches of the physiological psychologists in regard to muscular action in artistic breathing as compared with ordinary respiration substantiates fully the theory that the singer's breath-

control is an acquired one. This subject, however, lies properly within the province of the vocal teacher. Hence the interpretation of the fourth precept must depend, for the individual student, upon the method of breathing employed by his teacher of tone-production. The writer only touches upon the subject *en passant* as a teacher of *the other half* of singing—*lyric diction*—in order to remind the student that, however perfect his breath-control may be, if any attempt is made to increase the volume of the fundamental tone before the free vowel vibrations are properly adjusted to the vibrations of the resonant tone, his singing will inevitably be marred by one or more of the following results:

First, defective enunciation of the text, or, where vigorous articulation of the consonants makes the words intelligible, a diction without refinement, subtlety, or distinction.

Second, a loss of *timbre* in the voice through a lack of the upper partial harmonic tones, the presence of which is the distinguishing characteristic of perfect tonal beauty.

Finally, if the singer has cultivated a certain degree of tonal beauty at the expense of the word, by controlling the vowel vibrations with the glottis, he is in constant danger of injuring the delicate vocal cords through the strain of maintaining this artificial adjustment of the larynx under the increase of breath-pressure for increasing the volume of tone. Whereas, if a natural adjustment is maintained by controlling the vowel vibrations through the organs of articulation, as nature provided they should be controlled, the singer will be able to "support," increase, or decrease the volume of the fundamental tone at will, without either loss of resonance or sacrifice of the word.

"LISTEN AND IMITATE"

The "arrogance" which Diderot notes as the chief characteristic of the sense of hearing is nowhere so strikingly illustrated as in the culture of the vocal art, and especially in the tendency to sum up the entire vocal tradition under the single precept "listen and imitate," as the beginning and end of the student's

work. We have learned from the psychologist, and through analysis of the complete vocal process, that the production of the voice is governed, not by the ear, but by the MIND, the sense of hearing being merely one of the avenues through which the mental concept of the sung word is expressed and controlled. It is clear, therefore, that the study of singing should begin with mental training. It is certain that the student cannot imitate any tone until he has a clear mental concept of the same, and for this it is not sufficient to listen merely: one must listen *intelligently*. It is here that the greatest wrong is done to the beginner in singing, who is set at once to imitating musical tones before he knows what they are or is able to distinguish a good tone from a bad or indifferent one—if he be not, indeed, partially tone-deaf, as the majority of people are. Recognizing this inability of the average student to imitate perfect tones, one advocate of ear-training alone suggests the astounding compromise of making *bad* tones for the beginner to imitate at first and gradually improving the quality

of the same until the imitative powers are educated. Apart from the ethical question involved in such training, it is, on the very ground of the writer's own argument—that a pupil will imitate whatever he hears—the first duty of the teacher to see that he hears only good tones; the very best, and, if possible, *only* the best music. In short, the student's vocal training proper should begin with the cultivation of a taste for good music. Nor is it enough for him to learn to like the best music; he must know *why* he likes it. It is not sufficient to be able to discriminate between a good tone and a bad tone. He must be able to tell why one is good and the other bad; to recognize and estimate the characteristics and qualities of tone and vowel, and to discriminate between resonance and sonority, tone-color and *timbre*—in short, to recognize all those subtle characteristics of sound which constitute tonal beauty.

Even such ideal ear-training would not be sufficient in itself to make the student a singer—except in the case of genius or un-

usual talent, *plus* the perfect natural adjustment of tone and speech processes so rarely found, since the art of singing is not merely the production of beautiful tones, but includes the production of words as well, and these speech processes, as we have already seen, can only be mastered through control of the organs of articulation, by development of the *kinesthetic* faculty, or *sense of movement.*

So long as the singer considers his tones as mere concrete sounds produced in the larynx, and given vowel-color by some complicated action of the glottis or some vague metaphysical gymnastics, so long will his vocal difficulties, limitations, and dangers persist and increase. When, however, by proper training of the organs of articulation the delicate vocal cords are released from the unnatural strain placed upon them by the dormant and undeveloped sense of movement, the resulting deformed adjustment of the resonators is replaced by a normal and controlled adjustment, bringing out the full harmonies of *all* the vibrations of the voice. Then the singer

may safely return to the study of the classical Italian vocal traditions which, established thus upon a scientific basis, will be found to contain, indeed, the Alpha and Omega of the vocal art.

IX

STUDIES IN VOWEL PLACING

HAVING demonstrated by careful analysis of the complete vocal note that the tones of the human voice are compound *articulate* sounds, each of which contains a full chord of tones, the student will realize that the process known vaguely as "placing the voice" is simply that of *harmonizing the vowels*, or focusing these different tones into a vocal unit, which takes the form of its vowel constituent.

In Chapter VI we have seen how this is most quickly and effectually accomplished by regulating the proportion and adjustment of the vibrations producing the three primary tones of the voice-chord. The first step in this important work is to test the purity and strength of the vowel resonances which form the basis of the composite vocal tone. As

these subtle and delicate sounds are the result of free vibrations aroused by the fundamental tone in the mouth or vowel-chamber, they can be distinguished clearly only in the whispered vowels, from which the fundamental tone is suppressed, and the mouth vibrations aroused by the unvocalized breath alone.

A WORD ABOUT THE WHISPERED RESONANCES

Let no singer fondly dream, however, that he can perfect his vowels by simply whispering them over and over. The whisper is an excellent test of the strength and purity of the mouth resonances, but it is *only* a test.

If the vowel-chamber is correctly shaped the character of the whispered resonance will be correct—that is, a pure *a*, *e*, *i*, *o*, or *u*, etc. —while its pitch will depend on the *size* of this resonator. As both the size and the shape of this vowel-chamber are regulated by the organs of articulation, the purity and pitch of the vowel tone can be controlled only through control of these organs. If the student *happens to have the proper position of the tongue*

for a certain vowel, the whispered resonance will be correct, *provided* he whispers correctly, without tensing the vocal cords—a difficult process, which, when incorrectly practised, becomes a source of positive danger to those delicate muscular bands. If the position of the tongue is wrong, the more the vowel is whispered the worse it will be for both the vowel and the vocal cords. The action of the lips is also an important factor in modifying the pitch of the mouth resonances without altering their character. Therefore the corners of the mouth should be kept well forward, the aperture well rounded, and the upper lip free of the teeth, but *not* lifted. This is especially important in the Front vowels. The writer has noted a change of pitch in the High Front vowel as great as a minor *third* from spreading of the lips, and thus widening the resonator.

If the control of these mouth resonances were automatic—if, as Mr. Ffrangcon Davies asserts and others maintain, it were only necessary to *think* a vowel in order to "tilt the tongue" into the correct position for singing

that vowel—one would be forced to conclude that the majority of singers have very feeble powers of thought. Knowing that this is not the case, however, we must conclude, instead, that while this little mental gymnastic performance is, ordinarily, sufficient for speaking the vowels of one's native language correctly, it is not sufficient for singing them articulately. Take, for example, the High Back vowel *oo* as in *coo* (the Italian *u*), the most difficult of all the tongue positions, and hence the most difficult resonance to maintain. If—as the writer has found to be the case with nine students out of ten—the singer depends chiefly on the lips to shape the vowel-chamber for this sound, letting the untrained and indolent tongue sag to the more comfortable Mid Back position, the more he whispers that vowel the more it will resemble *o* and the more hollow and breathy will the resonance become. If, however, the intrinsic muscles of the tongue are trained to maintain the proper position, the vowel will lose the *o* sound, take its own character and pitch, and become one of the most brilliant and sonorous

of all the vowel resonances, and especially rich in harmonics. (See Note XI, page 332.)

In beginning this work for controlling the processes of speech in singing by the sense of movement, the student is supposed to have mastered the preliminary exercises given in *The Technique of Speech* for the cultivation of tactile sensibility in the organs of articulation and strength and flexibility of the *intrinsic* muscles of the tongue. Those exercises for shaping the vowel-chamber correctly afford the only reliable means of obtaining direct control of the character, pitch, and constancy of the vowel resonances. A certain amount of this development can be obtained by steady and patient work with the exercises here given, but the author cannot, of course, guarantee the best results in such cases.

These results will depend also, to a certain extent, upon the singer's breath-control. As the work of establishing a correct *kinesthesis* of the muscular mechanism controlling the breath lies properly within the domain of the singing-teacher, however, the writer offers

none of her special exercises for speakers, merely outlining the principles by which she has obtained the best results.

For the work in diction very little training along this line is really necessary except where abnormal habits of breathing have been established.

A WORD ABOUT ARTISTIC BREATHING

The student should understand fully, however, the difference between "artistic" breathing and that used in normal speech. To this end let him first inhale and then exhale the breath naturally, as in complete repose of mind and body; then speak a sentence in an ordinary conversational tone; afterward read it aloud, as for a large auditorium; and, finally, sing the words in full voice. Noting carefully the action of the breath in each case, he will find, in the first instance, that the period of inhalation is much longer than that of exhalation, with a period of rest, or *apparently* motionless relaxation of the body between.

In the second the rhythmic *systole* and *diastole* of the breath is adapted to normal speech by utilizing the period of rest for lengthening the period of exhalation for the process of articulation.

In the third, or oratorical enlargement of the speech processes, the period of inhalation is shortened and the muscular action strengthened for the lengthened exhalation demanded for sustaining and projecting the voice on the dramatic stage or in public speaking and reading.

In the final instance—the "artistic" breathing of the singer—the oratorical pause being entirely eliminated, the quick intake of breath between the phrases occupies only a fraction of the time given to the period of exhalation or emission of the vocalized breath.

Thus we see that artistic breathing is merely an extension of normal respiration with a reversal of the duration of the processes of inhalation and exhalation. Therefore the student need only take a quick inspiration and expel the breath slowly and

steadily. Two points, however, must be carefully guarded — a proper pose of the body and *a correct manner* of *inhaling*. For the former there must be no sinking in of the back at the waist-line or between the shoulder-blades; on the contrary, there should be a sense of muscular expansion across the back with the expansion of the ribs in inhaling, and this should continue firm throughout the emission of the tone. Anything resembling the rigidity of a "military carriage," so called, entirely inhibits this necessary amplitude and "play" of muscle. The chest must be kept normally elevated, but *without rigidity;* the shoulders and arms loose and free; the head well up, with the chin at right angles to the spine; and the throat perfectly relaxed, so *that the head can be rotated freely from side to side* while "spinning" out the resonant tone. In short, there must be perfect freedom and ease in the pose and carriage of the entire body.

In inhaling, the student must learn to take a full, *quick* inspiration, *with widely opened nostrils* and slightly parted lips, without unduly

inflating the lungs or sucking the air all downward into the chest, but drawing it upward into the head as well, as one *imbibes* a fresh breeze on coming out of a close room. If this upward inhalation is correctly done the student will feel the expansion of the lungs at the back simultaneously with the downward and outward movement of the diaphragm—an important point often neglected by singers in artistic breathing. In many instances this neglect causes the chest to collapse, even when the diaphragmatic action is correct. It is furthermore absolutely necessary in securing control of the *resonant* tone.

When the student has learned to inhale correctly, and to maintain a proper poise of the body, the following exercises and those given later for the adjustment of all the vibrations of the voice will be found sufficient for the breath-control of the public speaker and of great assistance to the singer in gaining a correct sense of muscular movement for the emission of tone in artistic breathing. Beginning with the alternation of only two vowels, another being added at each repeti-

tion, until five resonances and two words are included in a single phrase, this gradual increase in the period of expiration has been found sufficient for the longest phrase in singing by those of the writer's pupils who have acquired no artificial and unnatural habits of breathing.

There is nothing more to be deprecated for speaker and singer alike than the mistaken idea that one must draw in a great quantity of air to sustain the tones of the voice. The *amount* taken in should be regulated by atmospheric pressure alone. If the respiratory passages and thorax are properly opened, a sufficient quantity of air for the longest phrase in singing will rush in by its own momentum. The student need only attend to the quick and full expansion of the respiratory muscles in inhaling, and maintain a slower, steadier relaxation of the same in exhaling. Above all, let him avoid any deliberate *outward* muscular tension of the diaphragm itself. The support received from that elastic muscle upon which the column of breath rests is exactly in proportion to the

firmness of *its own support*. The points of support from which the gradual and steady relaxation of the diaphragm for legato emission, or the quick rebound of staccato vocalization, is regulated will be found in the combined action of the intercostal, dorsal, and abdominal muscles—especially the great muscles of the abdomen. Just how that support is obtained can only be demonstrated *in propria persona*, even for the demands of public speaking and reading. In the case of singers it is, of course, a question for the vocal teacher to decide.

A WORD ABOUT RESONANCE

Having established control of the vowel resonances through the sense of movement in the organs of articulation, and of the fundamental tone through the organs of respiration, the next step is to harmonize the differing pitch of these two tones into a vocal unit. The quickest and surest means of accomplishing this is through the mediation of the *resonant tone*. By the resonant tone is meant the reverberations of the fundamental tone

in the resonators of the face-mask, which alone furnishes a continuous stream of vibrations uninterrupted by the processes of articulation.

Accuracy of vocal technique, in either speaking or singing, depends, in the first instance, upon accuracy in the mental concept of *all* the characteristics and qualities of the complex tones of the voice. The temperamental singer or actor, especially, should take care that his "artistic" or emotional intuitions are clarified at the outset by accurate and intelligent conceptions of the effects for which he is striving.

Hence, in beginning the study of resonance let the student first study the word itself, since words, when not perverted by careless misuse or diverted to secondary meanings, are crystallized thought. Happily, in this case the full significance of the word, according to its derivation from the Latin *resonare*, "to sound again" or "resound," has been preserved in all its purity. All authorities are therefore practically agreed on the definition of the word. In the new International

Edition of Webster's Dictionary, for example, *resonance* is defined as "a prolongation or increase of sound, due to sympathetic vibration"; in the Oxford Dictionary, as "reinforcement or prolongation of sound by reflection; synchronous vibration."

By all authorities *sonority* is so explained as to convey the idea of "*fullness or magnificence of sound.*" The intelligent student will see at once that sonority is *a certain kind* of resonance. To the degree that his ear has been trained to the distinctions of quality in musical sounds he will realize that, while every tone may and should be characterized by the quality of resonance, only those of the middle and lower regions of the voice are truly *sonorous* or "magnificent" in sound, the higher notes being specially characterized by *brilliancy* rather than *fullness* of sound.

Unfortunately the lexicon definitions of the word "resonance" do not seem to be as clear as those of "sonority" to the average student, especially the actor or public speaker. Even vocal students are apt to infer that the "sympathetic" vibrations which impart resonance

to the voice are obtained by the mere increase and prolongation of the sound of the fundamental note made by the vocal cords, whereas resonance is a quality which should characterize the softest as well as the loudest —diminuendo as well as crescendo—tones. It is not a mere continuation, but a *transmission of sound by propagation.* This "carrying" quality is obtained by the addition to the fundamental tone of other partial harmonic tones generated by the vibrations of that "tonic" note in the resonators of the head and face-mask.

Hence, in order to gain control of this continuous resonant tone the student must turn his attention, not to the sounding, but the *re*-sounding apparatus of the voice. He must keep his thought directed to the *sensations* of tone in the resonators above the larynx. He must learn to feel and hear these sympathetic vibrations and to increase or decrease the volume of this resonant tone at will. He will no doubt find it difficult, at first, either to feel or hear these sympathetic vibrations in an ordinary tone; and there, precisely, is

the crux of all his technical woes. Any excess of the fundamental tone obscures, if it does not, indeed, neutralize the sympathetic vibrations of the resonant tone. It may, in fact, be set down as the first axiom of vocalization that the quality of resonance and a perfectly harmonized vowel can only be obtained by *beginning* with *mezza voce* practice. It is for this reason that the great Italian masters surpassed all others in the art of vocalization.

That method of building the voice entirely on a subdued fundamental or cord tone is, of course, a tedious process, demanding years of patient and meticulous practice and of artistic self-restraint on the part of both singer and vocal instructor. Fortunately for the harassed and hurried student of this age of speed mania, the greatest Italian of them all, Manuel Garcia, has, as we have already seen, shown how the process may be materially accelerated and improved by increasing the strength of the resonant tone, as well as decreasing or subduing that of the fundamental tone.

Such control of the resonant tone may be readily acquired through the process known as "humming," or arousing the sympathetic vibrations in the face-mask with the mouth closed as for *m*.

A WORD ABOUT HUMMING

As in whispering the vowels, the benefit to be derived from humming depends *upon the manner in which it is done*. In the first place, humming in the throat is not only useless but pernicious, and in order to avoid this the sound must be begun softly, with only just enough resistance of the vocal cords to vocalize the breath, leaving the vibrations free to pass upward into the resonators of the head and face-mask.

For this reason the humming must be begun with an *aspirate attack*—that is to say, as *a deep sigh, breathed out through the nostrils and gradually vocalized*. The movement of the upper stream of the breath—that passing over the palate into the head resonators—being thus started by the aspirate (*h*) *before the cords begin to vibrate for the sound of m*, a

strong, free flow of the resonant tone is secured at once without any pushing of the breath against the vocal bands or forcing of the fundamental tone. If the aspirate is not thus used for the attack of the "hum" the upper stream of the vibrations is apt to be deflected through the lower and larger channel of the vowel-chamber as soon as the mouth is opened for the vowel, thus decreasing the force of the resonant tone before a steady flow of the vibrations is established.

The most perfect breath-control and action of the vocal cords are not sufficient to make the vibrations mount freely into the resonators of the head, however, unless the mouth and teeth are kept naturally closed and the tongue relaxed in the normal position. Simply closing the lips is not sufficient if the jaw is allowed to sag or the tongue is depressed at the back, thus permitting the vibrations to rush into the mouth instead of passing over the veil of the palate. Humming with the mouth open should never be attempted until after the vibrations of the resonant tone have been made to mount freely by the use of *m*,

and a high and forward attack of the same secured with the aspirate (*hm*). Above all, combinations of consonants, such as *nd*, *ng*, and *nk* should *never* be used for humming, as the two consonant attacks, especially in the case of *ng* or *nk*, tend to stiffen the back of the tongue and focus the vibrations in the throat. Through any of these habits is lost the *impetus* gained from directing the full force of the breath upon the vibrations in the face-mask, which, by increasing the arc of the tone, give to the voice the true vocal curve.

When the student has learned to "spin" out the vibrations of the resonant tone freely with the mouth closed, the vibrations in the vowel-chamber should be gradually aroused by dropping the lower jaw and simultaneously lifting the tip of the tongue to the hard palate just behind the upper teeth, and thus, *without interfering with the flow of the resonant tone*, changing the sound of the same from *m* to *n*. The two sounds should then be alternated steadily, great care being taken to drop the tip of the tongue back to its normal

position behind the lower front teeth as *m* recurs. If a steady "bowing" of the breath is kept up on the vibrations of the resonant tone the vibrations in the vowel-chamber will take the resonance of the High Front Wide vowel (*i* as in *is*) during the interval of change from *m* to *n*, forming the syllables *min-nim* alternately on a continuous tone *without any effort to* SING *a vowel at all.*

In order that the pupil may understand fully the value and importance of this simple exercise, let him ponder carefully the following statement made by Professor Helmholtz[1]: "The peculiar advantage of resonance over proper tone depends precisely on the fact that disproportionately weak individual impulses, provided they succeed each other in correct rhythm, are capable of producing comparatively considerable motions." And again we are told by the physicist that "just as a series of small pulls will set a large bell swinging, so resonance results from the repetition of small impulses which, when the bodies are in tune,

[1] *Sensations of Tone*, page 150. Fourth edition (Ellis).

have an additive effect, but otherwise tend to neutralize each other."

Here, then, is the reason why *mezza voce* practice *on the open vowel alone* (even when the small impulses are not made by the pernicious stroke of the glottis) so often fails to develop the full beauty and power of the voice. This is why also, in the cases where it succeeds, the process is so prolonged and irksome to both teacher and pupil. The test of the whispered resonances shows that the pitch of the vowel is often *inharmonic* to that of the fundamental tone. Being thus *out of tune*, the "additive effect" of resonance is lost on those vowels, the upper partial tones are neutralized, and the voice is left without harmonics or carrying-power.

Beginning with the resonant tone, however, by humming gently on *m* and *n* alternately, with a *continuous* flow of the breath, the student establishes an alternating current of synchronous vibrations through the head and through the mouth. Applying this "make-and-break" device to each of the primary vowels by means of words beginning with *m*

and ending with *n* (such as the exercise given on *mine, main, mean, moan, moon*) (see Notes XIII and XIV), the vibrations of the vowel and of the fundamental tone are synchronized —*put into step*—and their respective pitches thus harmonized into a vocal unit by the mediation of the vibrations of the resonant tone.

One of the most general fallacies among students in regard to resonance is the impression that the sympathetic vibrations in the bony structure of the head, face, and chest constitute the whole of the phenomena of resonance, whereas this reinforcement merely corresponds to the part played by the vibrations in the wood of the violin in the production of the musical sounds made on that instrument. The student can prove this for himself by comparing the sound of a tuning-fork when placed on wood, and when held over the neck of a bottle containing the amount of water necessary to leave an open resonator whose period of vibration corresponds to the pitch of the fork. The first merely reinforces the volume of the sound,

while the second distinctly enhances its musical quality as well.

EXERCISES IN CONSONANT ARTICULATION

When a strong, continuous line of resonance has thus been established the student must learn to make the motions for all the consonants accurately and deftly, without interrupting the flow of the vowel resonance or altering its adjustment to the vibrations of the resonant tone. Let no singer who would be an artist fancy that he may scorn or slight this tedious and apparently superfluous work. English singers and speakers especially are noted among all foreign nations for their defective articulation of the consonants. This is most marked in the sibilants *s*, *z*, etc.; in *l* and in the trill of the *r;* but it is noticeable in all articulations.

In every case it is due to sluggish action of the tongue, the consequent heaviness of motion causing harshness of sound. The excessive hissing of the sibilant, for example, results from the failure to release the contact of tongue with palate promptly with the re-

lease of the tone, thus causing the residuary breath to escape as a hissing noise.

In articulating *l* the tongue is not sufficiently pointed and tensed at the tip, so that the stroke against the hard palate is not at the front, nor made with deftness and precision. The broadened tip is curled sluggishly backward toward the middle of the palatal arch, shutting off the vibrations in the mouth so that this beautiful bell-like consonant loses its resonance entirely on the English tongue. The same is true of the *r*, which, when not suppressed entirely or made purely vocal, is trilled heavily, impeding rather than *speeding* the tone as the clear Italian articulation does. Nor need the English-speaking student fancy that subduing the consonant sound, merely, will perfect the articulation. On the contrary, the result will be simply *obscurity* instead of harshness. Delicacy is the concomitant of precision, and only by *perfecting* the motions can this dual effect be obtained. For example, note the exquisite delicacy and precision of the consonantal processes of the De Reszkes and of

Sembrich, of Modjeska and Nazimova, of nearly all Russian or Polish artists trained to battle with the complicated consonant combinations of those languages.

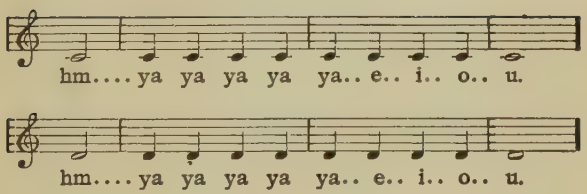
On no point is the *perfection of detail*, which distinguishes the work of the artist from that of the amateur, of more vital importance than this of gaining skill in articulating the consonants in singing *without interrupting the flow of the tones of the voice.*

Let the student, before passing the following exercises by, ponder carefully the axiom laid down by Dr. Saintsbury for the student of prosody, and equally as important to the singer as to the writer of verse: "Mere vowel sound without its consonantal consort is like mere accent or stress without its opposite, an imperfect and almost soulless thing."

EXERCISE FOR RELAXING THE JAW

Make a strong aspirate attack of the resonant tone (*hm*) on middle *c*, *d*, or *e*, according to the compass of the voice, and without interrupting the flow of the vibrations or moving the relaxed tongue from its normal position repeat the syllable *ya* four times, with a loose but vigorous downward and backward motion of the lower jaw. Repeat the syllable again, intoning the Low Middle vowel through one beat; then, while keeping the jaw down and well relaxed and maintaining a firm pressure of the tip of the tongue at the *point of support*, change the *point of resistance* to Mid Front, High Front, Mid Back, and High Back successively, thus intoning the five primary (Italian) vowels. Continue the exercise up the scale, through the intervals of a harmonic fifth, as far as the adjustment of the vowel resonance to the resonant tone can be maintained.

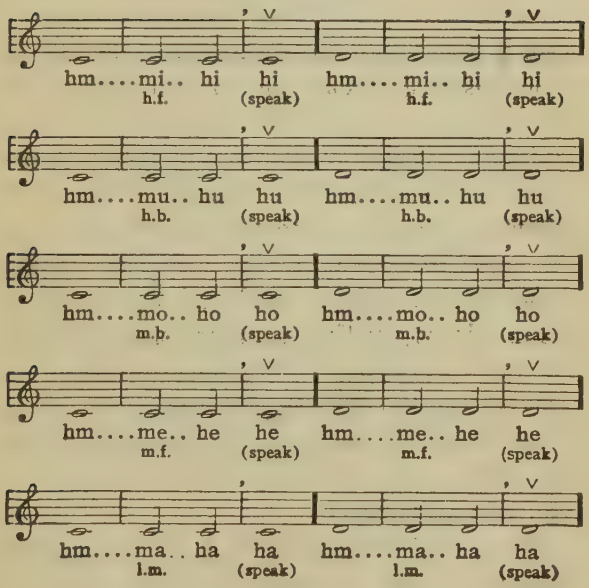
EXERCISE I.



EXERCISE FOR THE ASPIRATE

Few singers or speakers employ the aspirate (*h*) with its full effect yet with discretion. It is excluded from Italian, ignored by the French, and exaggerated by the Germans, while even the English, who use it with mod eration, are apt to make it too "breathy" and thus dissipate the resonance of its vowel "consort." The following exercise will enable the student to maintain a resonant tone in conjunction with an aspirated vowel either in speaking or in singing.

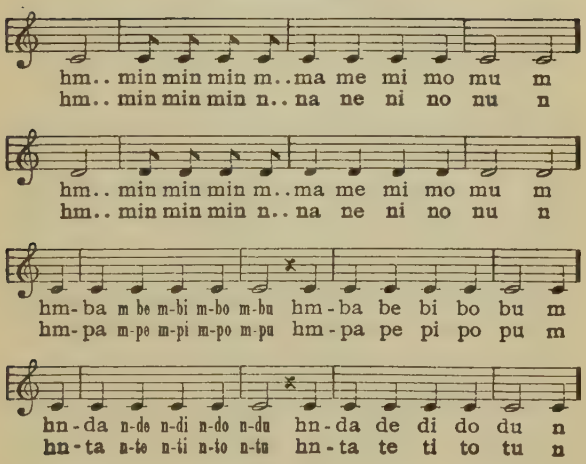
Make a strong aspirate attack of the resonant tone on middle *c*, open on the High Front vowel; repeat the vowel on the same note with an aspirate attack, intoning the syllable *hi* (English *he*); then with a strong breath-impulse from the diaphragm *speak* the syllable *on the same pitch.* Repeat the exercise up a fifth of the scale, semitone by semitone, first intoning and then speaking on the same pitch. Repeat the exercise on the primary (Italian) vowels.

EXERCISE II.

hm....mi.. hi hi hm....mi.. hi hi
h.f. (speak) h.f. (speak)
hm....mu.. hu hu hm....mu.. hu hu
h.b. (speak) h.b. (speak)
hm....mo.. ho ho hm....mo.. ho ho
m.b. (speak) m.b. (speak)
hm....me.. he he hm....me.. he he
m.f. (speak) m.f. (speak)
hm....ma.. ha ha hm....ma.. ha ha
l.m. (speak) l.m. (speak)

EXERCISE FOR INITIAL CONSONANTS

Make a strong aspirate attack of the resonant tone and repeat the syllable *min* rapidly three times, accentuating the *n* so as to produce a sound like the continuous plucking of a violin-string; on the fourth beat close on *m*, open on the Low Middle vowel, and intone rapidly the syllables *ma*, *me*, *mi*, *mo*, *mu*, accentuating the *m* with a strong action of the upper lip, thus focusing all the vibrations of the voice into clear, crisp, resonant vowels. Conclude the exercise by closing on *m*, to test the continuity of the resonant tone. Repeat the exercise, closing on *n* instead of *m* on the fourth beat and intoning the syllables *na*, *ne*, *ni*, *no*, *nu*. Repeat up a fifth of the scale, or as far as the adjustment of the vibrations can be maintained.

This exercise should be repeated on all the consonants, *opening and closing* on *m* with the labials and sibilants, and on *n* with the linguals. The consonants should be grouped as follows: *b* and *p*, *v* and *f*, *z* and *s*, *d* and *t*, *j* and *ch*, *l* and *r*, *g* and *k*.

EXERCISE III.

hm.. min min min m..ma me mi mo mu m
hm.. min min min n..na ne ni no nu n
hm.. min min min m..ma me mi mo mu m
hm.. min min min n..na ne ni no nu n
hm-ba m be m-bi m-bo m-bu hm-ba be bi bo bu m
hm-pa m-pe m-pi m-po m-pu hm-pa pe pi po pu m
hn-da n-de n-di n-do n-du hn-da de di do du n
hn-ta n-te n-ti n-to n-tu hn-ta te ti to tu n

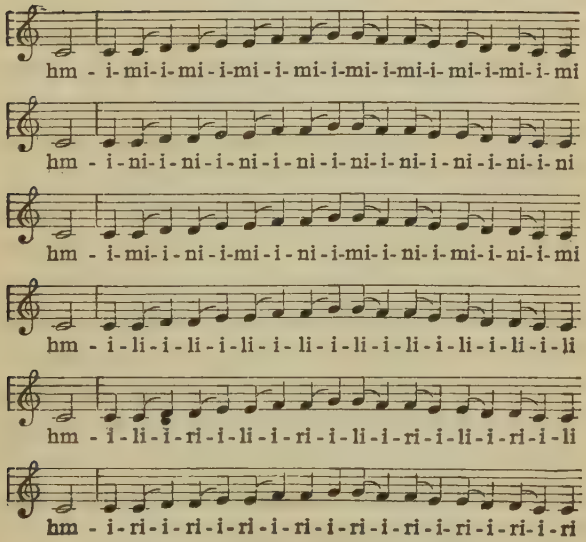
EXERCISES FOR CONSONANTS

(Occurring in the body of the word)

Make a strong aspirate attack of the resonant tone (on middle *c*, *d*, or *e*, according to the compass of the voice); open on the High Front vowel, and while intoning the same, close on *m* and open again on the vowel with such swiftness, precision, and deftness of motion that there is apparently no interruption of the tone, forming the syllable *imi;* continue up a fifth of the scale and back *without any sensible break in the flow of the vowel resonance.*

Repeat the exercise on *n*, forming the syllable *ini;* and again, alternating *imi* and *ini.*

Repeat on all the consonants, grouping and alternating *b* and *p*, *d* and *t*, etc., as in the preceding exercise, taking special care to practice *l* and *r* in the order given, as a defective articulation of *r* can most readily be remedied by first placing *l* with a *forward* stroke of the tip of the tongue, then alternating the movement for *r* with *l* before attempting the trill alone.

EXERCISE IV.

hm - i-mi-i-mi-i-mi-i-mi-i-mi-i-mi-i-mi-i-mi-i-mi-i-mi
hm - i-ni-i-ni-i-ni-i-ni-i-ni-i-ni-i-ni-i-ni-i-ni-i-ni
hm - i-mi-i-ni-i-mi-i-ni-i-mi-i-ni-i-mi-i-ni-i-mi
hm - i-li-i-li-i-li-i-li-i-li-i-li-i-li-i-li-i-li-i-li
hm - i-li-i-ri-i-li-i-ri-i-li-i-ri-i-li-i-ri-i-li
hm - i-ri-i-ri-i-ri-i-ri-i-ri-i-ri-i-ri-i-ri-i-ri

A WORD ABOUT INTONING

When, by means of the preceding exercises, the student has gained the technical skill necessary to make all the consonant motions without changing the character or pitch of the vowel resonances or interrupting the flow of the resonant tone, he will find himself master of the art of intoning, which is no less valuable to the actor and the singer in their technical work than to the speaker whose office demands the ability to intone a religious service. Many of the latter, especially among the English-speaking clergy, mar the beauty of the voice as well as of the litany by trying to intone with the sound made by the vocal cords alone, instead of articulating the mouth vibrations in words—or rather into syllables and phrases—and floating the same on the resonant tone.

In short, then, *intoning* is simply the distinct articulation of syllables and phrases on a *musical* tone of continuous pitch with the enlarged motions and positions of the organs of articulation peculiar to the art of singing.

It is, indeed, singing on a sustained tone, but within the range of the *speaking*-voice only and with a subdued proper tone and increased resonant tone. If an excess of fundamental tone is used it is valueless. In order to prevent fatigue of the vocal cords the pitch should be changed by semitones at regular intervals *between the phrases*. If this change of pitch is an upward movement it must be made on the resonant vibrations of *m* (without any vowel sound).

This process of intoning must not be confused with *chanting*, usually done on an excess of fundamental tone, nor with the mere declamation of the vaudeville stage, nor yet with the hybrid processes known as "song speech," "cantillating," etc., which certain artists have used with great effect on the stage. It is heard in its greatest purity in the litany of the Greek Church.

Having gained this invaluable technical aid to his art, the student should apply the same to the perfection of his diction in each of the languages which he proposes to use for dramatic work, singing, public speaking, teach-

ing, or merely for cultured and fluent speech. Every student should begin with the Italian gamut as the normal basis of all vowel production, even if he does not apply it to the study of that language, and then proceed to that of his native tongue; afterward, to French and German in the order preferred.

Let every student remember that the most important part of this work is the establishment of a correct kinesthesis of the organs of articulation *in his own language;* nor will he find this task as easy as might be supposed. In fact, he will be not a little astonished to discover that he has almost no control of his native language through the sense of movement, having learned the same as a child by the ear alone. (See Note XII, page 333.) It is, however, a duty which every English singer especially owes to his much maligned mother-speech, and no small honors and rewards await those who shall have the courage and the patience to perform this task, since this alone is necessary to prove to the world that English not only can be sung, but can be sung artistically and beautifully.

Speakers who may not care to go on with the musical formulas, and even singers who do so, should acquire the art of *reading* "on the breath" by intoning sentences, with correct phrasing, according to the instructions given for the key-words of the preceding vowel-gamut. Sentences containing alliterations of *m*, *n*, and *v* are especially valuable for such practice, as they enable the student to acquire the correct *sensation* of tone through the face-mask necessary to regulate the pressure of the breath, on the *upper* stream of vibrations, and to maintain the exact balance of *proper* and *resonant* tone needed to *float* the spoken or sung vowel. There is nothing more beautiful or more moving in human utterance than a sustained, rhythmic, resonant flow of the voice which may be thus acquired by an actor or public speaker as readily as by a singer.

There are few subjects on which there is greater disagreement among teachers than the choice of vowels for practice in "placing" the voice. The majority of course choose the Low Middle vowel *a* because it *seems* the

easiest and most natural position on which to open the mouth well and because vocal effects are most readily obtained with it. It has of course the strongest vibrations, the greatest volume and power of all the resonances; but for that very reason it is the most dangerous for the beginner. It is like placing a double-edged Damascus blade in the hands of a novice at fencing. Of all the mouth vibrations it is the most difficult to harmonize with the vibrations of the resonant tone and to focus *forward:* the *correct position* is difficult to obtain and maintain, and the incorrect "natural" one, so called, is apt to establish insensibly the tendency to depress the tongue at the back, which must eventually affect the position and action of the larynx and cause more or less throat stiffness on high tones. On the contrary, the High Front vowel *i* (*e* in *be*), having the smallest and most forward chamber, the highest mouth pitch, and the most brilliant sound, is the easiest to focus properly and harmonize with the resonant tone. This, of course, provided the proper tongue position

has been mastered, which should be the first step in study of the technique of speech.

All the other vowels should be focused *from* this one, especially the High Back vowel *u* (*oo* in *woo*). The High Middle vowel *e* (*e* in *went*), which on account of its dull, diffused resonance the writer omits in the lyric formulas, substituting the more brilliant Mid Front vowel *e* (*e* in *sera*, Italian), can only be mastered after the other vowels are all placed and the tongue is perfectly trained. Then it can be given brilliancy by keeping the point of resistance as near to that of the High Front vowel as possible. To add volume and amplitude, the area of the tension of the tongue at the *point* of support behind the lower front teeth must be widened without losing the tension at the High Middle point of resistance and thus allowing the resonance to become that of the Low Front vowel, as so many French singers do in such phrases as "Oh, bel Mazzetto"—(Oh, b*a*l M*a*zzatto).

Having inhaled properly, close the mouth naturally and expel the breath slowly through

the nostrils by a strong action of the muscles controlling the diaphragm, taking great care to keep the nostrils well open. Repeat, merging this sigh into a "hum" by vocalizing the breath, and make a strong aspirate attack of the resonant tone (*hm*) on middle *c*, *d*, *e*, or *f*, according to the compass of the voice. "Spin" the tone out steadily until a strong, continuous line of resonant vibrations is established.

As soon as this is done, repeat rapidly, and while humming drop the jaw well downward and *backward* with the tongue in the High Front position, thus intoning the Italian *i;* keeping the tip firmly braced at the *point of support*, change the *point of resistance* from the High Front to the High Middle position and back again, thus alternating the two vowels clearly without interrupting the flow of the resonant tone.

When this movement has been practised until the change from one vowel-chamber to the other can be made without any conscious muscular effort, conclude the exercise by articulating distinctly on a continuous flow of

EXERCISES

For Developing the Sense of Movement on the ITALIAN VOWEL RESONANCES

High Front	to	High Middle,	repeat	twice	and	then	intone	*i membri*
"	"	High Back	"	"	"	"	"	*i dui*
"	"	Mid Back	"	"	"	"	"	*Dio mio*
"	"	Low Back	"	"	"	"	"	*i soldi*
"	"	Mid Front	"	"	"	"	"	*i beni*
"	"	Low Front	"	"	"	"	"	*i fatti*
"	"	Low Middle	"	"	"	"	"	*mia madre*
"	"	Low Back	"	"	"	"	"	*i soldi*

EXERCISES

For Repeating the Vowel Impulse on a Single Voice Impulse

High Front,	repeat	twice	and	then	intone	*si il*
High Middle	"	"	"	"	"	*dove è*
High Back	"	"	"	"	"	*fu una*
Mid Back	"	"	"	"	"	*mio onore*
Low Back	"	"	"	"	"	
Mid Front	"	"	"	"	"	
Low Front	"	"	"	"	"	
Low Middle	"	"	"	"	"	*aria aperta*

the *resonant tone* the Italian words *i membri.*

Inhale as before, attack the resonant tone in the same way (*hm*); and, opening again with the tongue in the High Front position, change the *point of resistance* to the High Back position, passing through High Middle, thus intoning the three High vowels. Still without interrupting the flow of the resonant tone, return to the High Front position and alternate the High Front and High Back vowels several times. When this movement has become free and subconscious intone the words *i dui.*

Repeat the above exercise, continuing the movement through the High Middle and High Back to the Mid Back position without interrupting the flow of the resonant tone; alternate High Front and Mid Back vowels until the movement is free, concluding the exercise by intoning the words *Dio mio.*

Repeat the exercise again, passing through all the intermediate positions given above to the Low Back position, alternating the High Front and Low Back vowels and, when the

movement has become free, intoning the words *i soldi.*

When the High vowels and Back vowels have thus been placed, repeat the same exercise on the Front and Low vowels, passing first from High Front to Mid Front, alternating the two vowels without interrupting the flow of the resonant tone, and conclude the exercise by intoning the words *i beni.*

Repeat, passing from High Front through Mid Front to Low Front, alternating High Front and Low Front, and intoning the words *i fatti.*

Repeat, passing through all intermediate positions from High Front to Low Middle, alternating the two vowels and intoning *mia madre.* If great care is exercised to keep the vibrations of the vowel well forward by a firm downward pressure of the tip of the tongue at the *point of support* and a well-relaxed jaw, this practice will give a perfectly forward resonant and brilliant Italian *a.*

The sole vagary of the Italian language in vowel enunciation is the multiplication of resonances in a single syllable, as in *miei*

buio, aiuolo, etc. This demands great flexibility of the tongue, especially in singing, when, as is often the case, two or three vowels are sung on one note. When the *same vowel* is repeated on one note the feat is particularly difficult for the heavy English tongue, which, being unused to this form of enunciation, is apt to slight the second resonance, making it merely a "vanish," as in the English *mixed* vowels, or else omit it altogether. If the singer attempts to repeat the same vowel on a single voice impulse, without proper training of the tongue, the result is apt to be a glottal attack of the second resonance, than which, as we have already said (but cannot repeat too often), nothing is worse for the voice. For this reason the student is urged to master thoroughly the following exercise and those given on pages 261 and 262.

"Spin" the resonant tone for one measure on *m-n;* open on the High Front vowel, and while intoning the syllable *si* renew the tongue impulse and repeat the vowel, *without repeating the voice impulse,* thus articulating the two words *si il* on one vocal note. Repeat the

exercise on High Middle vowel, intoning *dove è;* on the High Back vowel, intoning *fu una;* on the Mid Back, intoning *mio onore;* on the Low Middle, intoning *aria aperta.*

Great care must be exercised by English-speaking students not to move the tongue during the emission of the Italian vowels, thus changing those pure and flawless resonances into mixed vowels with an impure quality. This is necessary not only to a correct pronunciation of Italian, but *to secure a basis of pure vowel resonance in any language.* English, for example, possesses in addition to its mixed and shade vowels as many pure resonances as Italian.

When a correct *kinesthesis* of the organs of articulation has been established with the normal primary vowel positions of the Italian gamut, let the student repeat the exercises for the sense of movement on the English gamut with the variations in the tongue positions which produce the resonances peculiar to that language. For example, while intoning the High Front vowel *e* as in *be* change the *point of resistance* by widening the tongue, thus obtaining a second resonance from this position, that given to the so-called "short" *i* in English. When the movement has become free, repeat the words *He is* without interfering with the flow of the resonant tone.

Proceed with the movement from the High Front vowel to each of the others in turn, as in the Italian gamut, noting that the English gamut is enriched by widening the vowel-chamber in five other positions—the High Back, Low Back, Low Middle, Mid Middle, and Low Front; adding the peculiarly English resonances *oo* as in *stood*, *a*(*w*) as in *saw*, *a*(*r*) as in *bar*, *u* as in *us*, and *a* as in *can*.

In singing English special attention must

EXERCISES For Developing the Sense of Movement on the ENGLISH VOWEL RESONANCES

High Front	to	High Front Wide,	repeat	twice	and	then	intone	*He is*
" "		High Middle	"	"	"	"	"	*He went*
" "		High Back	"	"	"	"	"	*We woo*
" "		High Back Wide	"	"	"	"	"	*He stood*
" "		Mid Back	"	"	"	"	"	*We go*
" "		Low Back	"	"	"	"	"	*He trod*
" "		Low Back Wide	"	"	"	"	"	*He saw*
" "		Mid Front	"	"	"	"	"	*We favor*
" "		Low Front Wide	"	"	"	"	"	*We had*
" "		Low Middle	"	"	"	"	"	*We ask*
" "		Low Middle Wide	"	"	"	"	"	*We are*
" "		Mid Middle	"	"	"	"	"	*See her*
" "		Mid Middle Wide	"	"	"	"	"	*We cull*

EXERCISES ON THE MIXED VOWELS

High Front	to	High Middle,	with	High Front Wide	vanish	.		*We save*
" "		repeat H. F.	"	"	"	"	"	*We cede*
" "		to Low Middle,	with	High Black Wide	vanish	.		*We smile*
" "		to Mid Back,	"	"	"	"	"	*We wove*
" "		*through* High Front Wide to High Back				.	.	*We muse*
" "		to Low Middle,	with	High Back Wide	vanish	.		*We found*
" "		to Low Back,	"	" Front	"	"	.	*We toil*

be paid to obtaining a refined and musical pronunciation of the unlovely Natural vowel (*er* as in *her*) and its wider variant (*u* as in *us*) by carefully modifying the vowel-chamber at the Mid Middle position. (See *The Technique of Speech*, pages 158, 196.)

After a free sense of movement has been gained through all the normal positions and their English variants, the student must apply the facility thus obtained to acquiring the deft and delicate movements of the tongue necessary to enunciate with refinement and distinction the complex and subtle mixed and shade vowels peculiar to our language.

This is done by maintaining a firmly molded vowel-chamber on the primary resonance, not allowing the tongue to move too soon to the position giving the secondary resonance, the latter being merely a *vanish* at the moment of closure or of the articulation of the closing consonant. In the case of the mixed *u* the movement is reversed, the tongue merely passing through the position for the first resonance preparatory to shaping the vowel-

chamber for the second, which forms the body of the syllable.

This deftness of movement is of particular importance with the shade vowels, to avoid any exaggeration of the third resonance in such words as *tire*, *cure*, *hour*, etc.

In applying these exercises for the development of a correct *kinesthesis* of the organs of articulation for the French language the English tongue must be trained to make several movements entirely foreign to the mechanism of normal English speech.

First, the student must learn to *narrow* the tongue in various positions in order to produce certain subtle and elusive vowel resonances peculiar to French. This is done by tensing the side muscles of the tongue inward at the *point of resistance* during the emission of the vowel sound. By thus narrowing the vowel-chamber in the High Front position we obtain the variation of *i* used by the French in open syllables; in the High Middle (narrow) position he obtains the delicate resonance of the unaccented *e*, sometimes known as *e muet;* in the Low Front (narrow)

the peculiarly French variation of the so-called "short" *a* as in *ami;* from the Low Middle (narrow) position another equally characteristic French variation of *a* before the consonant *r*, as in *charme;* from the Mid Front (narrow) position the closed *é*, as in *lié*.

In addition to this foreign movement of the tongue the upper lip must be trained to make the "covering" motion by which the French secure the modified variant of the High Front vowel *u*, as in *tu*, and of the High Middle (narrow) vowel, given to the digraph *eu*, as in *feu*.

Again, the veil of the soft palate must be made flexible so as to remain slightly depressed instead of following automatically the movements of the tongue, and by this modification of the vowel-chamber permitting a sensible increase in the vibrations of the resonant tone in four positions, thus producing the four *double* resonances or so-called "nasal" vowels *am*, *an* (or *em*, *en*); *im* or *in; om* or *on; um* or *un*.

EXERCISES

For Developing the Sense of Movement on the FRENCH VOWEL RESONANCES

High Front to High Front (Covered) . . . *il fût*
" " " " Narrow . . . . . *il rit*
" " " Middle . . . . . *il est*
" " " " Wide . . . . . *il rêve*
" " " " Narrow . . . . . *si le*
" " " " " (Covered) *il veut*
" " " " " (Nasal) . . *si l'un*
" " High Back . . . . . *il court*
" " Mid Back . . . . . *si tôt*
" " " " Wide . . . . . *si fort*
" " " " (Nasal) . . . . . *si bon*
" " " Front Narrow . . . . . *il bénit*
" " Low " " . . . . . *il a*
" " " " (Nasal) . . . . . *il vint*
" " " Middle . . . . . *il fâche*
" " " " Narrow . . . . . *il charme*
" " " " (Nasal) . . . . . *si grand*

Having acquired the movements of the tongue peculiar to Italian, English, and French, English-speaking students at least should find very little difficulty in establishing a correct *kinesthesis* for the German language, the variants of which are merely the wide and mixed vowels which it possesses in common with English and the narrow and modified vowels similar to others peculiar to French. His principal work, indeed, in German will be the variations in the consonant processes peculiar to that language and the difficult, jaw-wrenching combinations of the same.

EXERCISES

For Developing the Sense of Movement on the

GERMAN VOWEL RESONANCES

High Front to High Front Wide . . . . . *Sie ist*
" " " " " (Covered) . . . . . *Sie ist müde*
" " " Middle . . . . . *Die Welt*
" " " " Wide (Covered) . . . . . *Die Träne*
" " " Back . . . . . *Die Ruh*
" " " " Wide . . . . . *Die Lust*
" " Mid Back . . . . . *Wie hoch!*
" " Low Back . . . . . *Die Wonne*
" " Mid Front Wide . . . . . *Die Seele*
" " Low Front . . . . . *Die Halle*
" " " Middle . . . . . *Die Nacht*
" " " " Wide . . . . . *Die Wahrheit*
" " Mid Middle Narrow . . . . . *Dieser*
" " " " " (Covered) . . . . . *Die Oese*

EXERCISE ON MIXED VOWELS

High Front to Low Middle with High Front Wide vanish . *Die Heide*
" " " " " " Back vanish . . . . *Die Augen*
" " " Back " " Front Wide vanish . *Die Freude*

X

STUDIES IN VOWEL HARMONIES

BY the foregoing exercises for the development of the sense of movement the student will have acquired ease and facility in altering the shape of this resonator and articulating the free vowel vibrations into words, without checking the flow of the resonant tone, *on a continuous fundamental pitch.* He must now begin the far more difficult task of maintaining these vowel harmonies by keeping this perfect adjustment of all the vibrations of the voice *as the pitch of the fundamental tone rises and falls.*

As he begins this delicate and important task of co-ordinating the processes of articulation to the *discrete* movement peculiar to the voice in singing, he finds himself face to face with the ancient riddle propounded by

Aristotle: "Why is a descending scale more harmonious than an ascending one?" [1]

If asked to state the problem as it appears to him the singer would doubtless express the proposition in reverse order: "*Why is it more difficult to sing up than down?*"

As our modern system of tonality is, so far as we know—which is but little—entirely different from that of the Greeks, absolutely no light is thrown on the singer's particular phase of the problem by the philosopher's conclusion that, since the highest note of the Greek tetrachord was the leading tone of their scale, it was the natural and therefore the proper place to begin.

Nor do we find any greater enlightenment in the solution of the riddle offered by one of the French translators of the Problems: that "low sung after high has something more euphonious and frank." That it leaves a more satisfying sense of finality and completeness every music lover is well aware.

These facts are caviar to the singer. He is not in the least concerned with the philo-

[1] *Problemata*, xix, 33.

sophical or psychological aspect of the subject. He is perfectly aware that the descending scale is more harmonious *because it is easier to sing,* and is therefore sung better, hence more "in tune." In short, for the singer, the ancient riddle resolves itself into a technical problem pure and simple. Furthermore, the vocal student who has followed the work given in the preceding chapters will recognize it at once as a problem in the technique of *speech;* not a difficulty of *tone* production, but of *vowel* production, and of maintaining perfect co-ordination of the two processes on every movement of the voice. He knows that, while the vibrations of the fundamental tone are controlled by the action of the breath on the vocal cords, the mouth vibrations which produce the vowel tones are regulated by the action of the *tongue.* Hence, in singing up the scale there must be constantly increasing and equalized tension of the vocal cords *and* of the *intrinsic* muscles of the tongue in order to maintain this co-ordination of the vowel and the fundamental tone as the pitch of the

latter rises. As the average singer pays little if any attention to the action of the tongue in controlling the vowel vibrations, he thus loses the adjustment of the resonators and the harmony of the voice-chord on every upward progression of the fundamental tone.

In singing down the scale, on the contrary, there is a corresponding decrease of muscular tension, hence the adjustment of the resonators can be maintained and the co-ordination of the processes of articulation and phonation preserved with less effort until the extreme lower regions of the voice compass are reached. Even here, however, as the movement is downward and the tones chiefly *regurgitant*, the muscular tensions are more easily maintained and the vowel harmonies more complete than on the ascending scale.

For this reason, quite apart from the question of tonality, the thoughtful modern singer finds himself in perfect accord with the logical conclusion of the Greek philosopher that the top of the scale is "the natural and therefore the proper place to begin."

Unfortunately, when he attempts to put

this simple theory into practice, however, he finds himself on the opposite horn of the vocal dilemma, the equally difficult and delicate feat of attacking the *vowel* on a fundamental tone of high pitch. Certain vocal teachers are so keenly alive to the dangers of forcing the voice of the beginner by allowing him to sing ascending exercises and scales on the open vowel, that they risk the alternative of attacking the tone on a high fundamental pitch in order to "build the voice downward" in the more natural way. This is not necessary, however, since both horns of the dilemma may be avoided by *lifting the fundamental pitch with the resonant tone.* The flow of the tone being thus established on the upper stream of the divided breath, the singer who has secured proper control of the organs of articulation through the sense of movement can then add the vowel tone by simply opening the vowel-chamber with the tongue in the correct position without any strain upon the extrinsic muscles which regulate the adjustment of the resonators. The vowel attack on a high pitch being thus avoided, he

can sing down with perfect adjustment of the resonators. After the co-ordination is perfected on the descending movements of the voice it can gradually be acquired on the ascending movements.

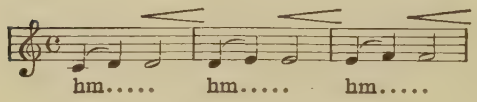
EXERCISES FOR CO-ORDINATING THE PROCESSES OF ARTICULATION TO THE DISCRETE MOVEMENTS PECULIAR TO THE VOICE IN SINGING

It is, of course, necessary to employ musical notation in the following exercises in order to indicate the movement of the voice; but, as we have already said, these musical *formulas* are not offered as vocal exercises in the usual acceptation of the term. If used correctly according to the directions given, they will enable the student to maintain the integrity of the words in singing without any sacrifice of tonal beauty, *provided* the organs of articulation have been properly trained and the vowels correctly placed according to the exercises previously given in this book and the preliminary volume referred to before. They are, in short, simply exercises for

co-ordinating the action of the organs of articulation, especially the tongue, to the automatic processes of phonation in singing, by means of the sense of movement. If used as mere *vocalizes* this object is not attained and their value is thus sacrificed.

FORMULA A.

I.



Having gained control of the sympathetic vibrations aroused by the upper stream of the divided breath through the sensations of tone in the face-mask, the student must learn to make a crescendo on this resonant tone by means of the sense of movement in the muscles brought into play in artistic breathing. Until the "hum" can be thus increased or decreased at will it is extremely difficult to keep the proper balance between the fundamental tone and the resonant tone in opening the vowel-chamber and focusing all the vibrations into a complete vowel harmony.

Having inhaled properly (with widely opened nostrils and expanded diaphragm, but without unduly inflating the lungs by suction of air), start the flow of the upper stream of the breath as a sigh through the face-mask; make an aspirate attack of the resonant tone (*hm*) on a middle pitch ranging from *c* to *g* according to the natural compass of the voice.

Lift the pitch of the fundamental tone one semitone on the "hum" (*m*), then make a strong but gradual crescendo of this resonant tone on that note by a steady "bowing" of the breath, so to speak, on the vibrations in the face-mask, without undue tension of the vocal cords, but with sufficient fundamental tone to vocalize the sound clearly.

Continue, semitone by semitone, up a fifth of the scale *without piano accompaniment.* If the pitch of the tonic is given by a tuning-fork the voice will soon take the correct intervals.

When the crescendo on the resonant tone is sufficiently strong to give the true vocal curve to the tone, the vibrations in the vowel-chamber should be gradually aroused by

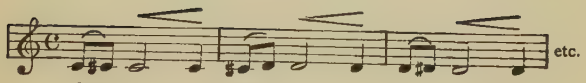
changing the humming sound obtained with *m* to the softly buzzing sound of *v* without interfering with the flow of the upper stream of the divided breath. In making this change great care must be exercised to preserve a musical quality resembling that of a violin tone, and not permit the sound to degenerate into that produced by blowing on a comb.

Begin exercise as in Formula A, and when the vibrations in the face-mask are strongest from the crescendo action of the breath, open the mouth quickly but *gently* by relaxing the lower jaw completely and *simultaneously* shaping the vowel-chamber by taking the correct tongue position with a swift, firm action of the intrinsic muscles, beginning with the High Front vowel, forming the syllable *ve* (Italian *vi*). Continue up a fifth of the scale, semitone by semitone, then repeat with intervals of diatonic scale.

If the tip of the tongue is held down firmly at the *point of support* (against the gums just behind the lower front teeth) while the sides of the *cortex* are tensed at the High Front *point of resistance* the veil of the palate will

FORMULA B.

I.



hm.....vi hm.....vi hm.....vi

II.

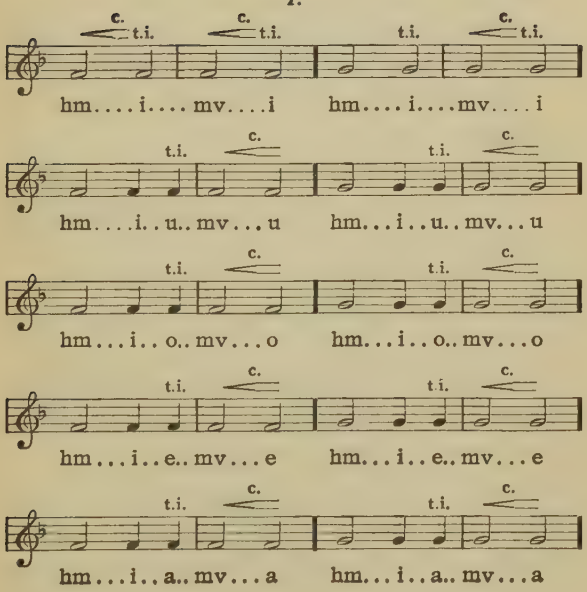
hm.....vi hm.....vi hm.....vi

rise automatically, permitting a sufficient number of the vibrations of the fundamental tone to rush into the mouth, where they will be segregated *by the shape of the cavity* into the form producing the correct vowel resonance, a clear, forward, brilliant *i* (Italian). The vowel vibrations must be controlled through the sense of movement in the organs of articulation, while the tone is being directed through the throat and head by the sense of movement in the muscles controlling the breath.

If the student bursts open the vowel-chamber by a blast of fundamental tone on the delicate vowel vibrations, the resonant tone and its harmonizing effects are lost and the humming, of course, a useless prelude. Let the singer remember that every effort to *sing* the vowel with glottis or cords, while they are singing the tone, produces the same effect that would be given to a violin tone if the player changed his bowing with every change of fingering.

If the vowel resonances do not come out clearly and brilliantly with the correct action

FORMULA C.

I.

c. t.i. c. t.i. t.i. c. t.i.
hm.... i.... mv.... i hm.... i....mv.... i
t.i. c. t.i. c.
hm....i.. u.. mv... u hm... i.. u.. mv... u
t.i. c. t.i. c.
hm... i.. o.. mv... o hm... i.. o.. mv... o
t.i. c. t.i. c.
hm... i.. e.. mv... e hm... i.. e.. mv... e
t.i. c. t.i. c.
hm... i.. a.. mv... a hm... i.. a.. mv... a

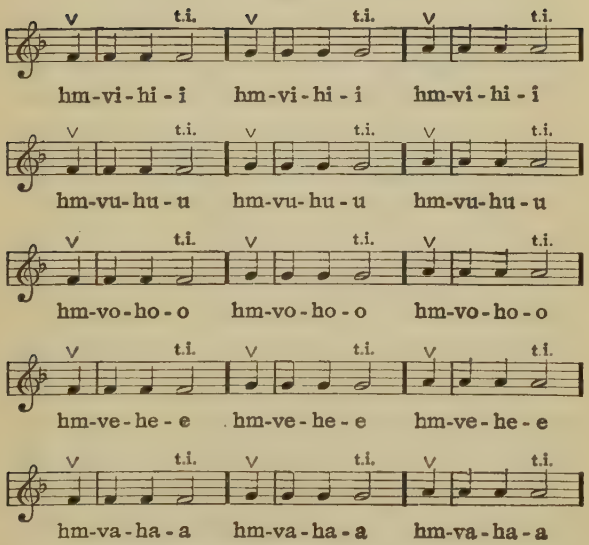
of the organs of articulation in Formula B this result is due to weakness of the muscles of the tongue, which must be developed *equally* with the muscles of respiration, a fact which few singers seem to realize. They are exactly in the condition of a violinist who pays heed only to his bowing and neglects his fingering entirely, thinking he will be able to finger by ear.

The only remedy is to learn to shape the vowel-chamber correctly, by strengthening the muscles of the tongue and lips. When this has been done, or while it is being done, the process of focusing the vowel vibrations —*by the tongue impulse*—without interrupting the flow of the resonant tone should be practised on the Formulas C *I* and *II*, the tongue impulse being indicated by *t.i.*

When, in addition to a free crescendo of the resonant tone, the student can control the pitch of the vowel tone by a firm, deft tongue impulse, he can secure a perfect proportion and balance of the three primary tones of the voice by the following exercise.

FORMULA C.

II.


v t.i. v t.i. v t.i.
hm-vi-hi-i hm-vi-hi-i hm-vi-hi-i
v t.i. v t.i. v t.i.
hm-vu-hu-u hm-vu-hu-u hm-vu-hu-u
v t.i. v t.i. v t.i.
hm-vo-ho-o hm-vo-ho-o hm-vo-ho-o
v t.i. v t.i. v t.i.
hm-ve-he-e hm-ve-he-e hm-ve-he-e
v t.i. v t.i. v t.i.
hm-va-ha-a hm-va-ha-a hm-va-ha-a

NOTA BENE.—t.i.=tongue impulse.

EXERCISE FOR HARMONIZING THE VOWELS

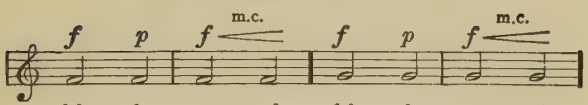
Having inhaled properly, drop the jaw well downward and backward, with the tongue in High Front position; whisper the vowel *e* as in *be* (Italian *i*) with a strong aspirate attack, taking care that there is no tension of the vocal cords and that the breath is directed by the muscles controlling the diaphragm straight into the front part of the vowel-chamber or mouth, forming the syllable *he*. If the vowel is vague or obscure it is useless to proceed with the exercise until the *correct tongue position* is obtained.

When a clear, full, whispered resonance has been secured, merge the whisper into a very soft fundamental tone without altering the shape of the vowel-chamber or lessening the volume of the vowel tone, thus intoning the syllable *he* (Italian *hi*), *mezza voce*, on *f*.

Close the lips and increase the vibrations of the resonant tone by making a strong crescendo *hum*; change the *m* to *v*, and open again with the tongue in the High Front position *without interrupting the flow of the resonant tone*.

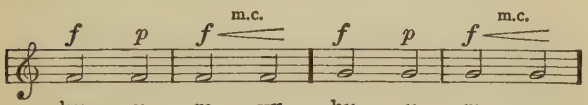
FORMULA D.

For Harmonizing the Vowels.



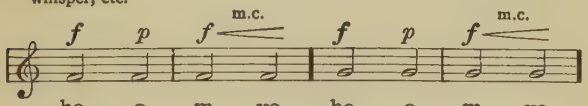
hi.... i m.... vi hi.... i m.... vi

whisper..intone, hum....sing whisper..intone, hum....sing



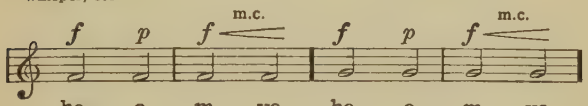
hu.... u m....vu hu.... u m....vu

whisper, etc.



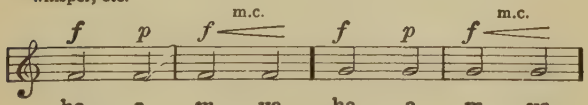
ho.... o m....vo ho.... o m....vo

whisper, etc.



he.... e m....ve he.... e m....ve

whisper, etc.



ha.... a m....va ha.... a m....va

whisper, etc.

If the proper proportions of vibrations indicated above (clear, whispered mouth tone, soft fundamental tone, and strong resonant tone) has been secured the result will be a complete vocal tone with a clear, bell-like resonance, a distinct vowel character, and its full quota of harmonics, forming a perfect voice-chord.

Repeat this exercise, and while whispering the High Front vowel change the point of resistance to High Back without moving the tip of the tongue from the *point of support* behind the lower front teeth, thus changing the vowel resonance from that of the High Front vowel to that of the High Back vowel. Make a strong aspirate attack of the same, intoning the syllable *who*. When a clear, whispered resonance of *oo* (Italian *u*) has been obtained, close on *m*, change to *v*, and proceed as before.

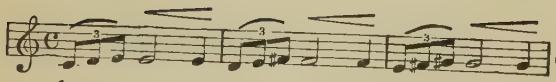
Repeat, moving from High Front to Mid Back, whispering the syllable *ho*, closing on *m*, changing to *v*, and proceeding as before.

Repeat, moving from the High Front to each of the primary vowels in turn.

When the five primary vowels (Italian) have been perfectly harmonized, the student should turn his attention to the movements peculiar to the voice in singing. The formulas for the ascending scale on the resonant tone (see E—I, II, and III) should begin with the three steps of a major third, increase to a fourth, and then to a fifth, opening with the High Front vowel as usual and passing in the order adopted in the Italian gamut, according to the transitions indicated, through all the primary positions. The *m* should be changed to *v* for each vowel attack, as it gives a more forward placement and permits a freer action of the lower jaw. If the perfectly relaxed jaw and firm pressure of the tip of the tongue at the point of support behind the lower front teeth are secured, the veil of the palate will rise for the emission of each resonance to the proper position to regulate the adjustment of all the resonators above the larynx according to the position of the tongue and the poise of the larynx, thus preserving the voice-chord intact.

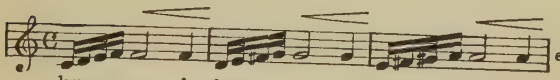
FORMULA E.

I.



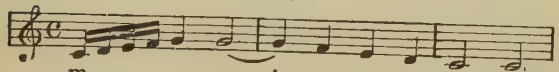
hm.....vi hm.....vi hm.....vi

II.

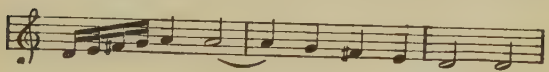


hm... v... i hm.... v... i hm..... v... i

III.



m.....v....i.....i....m



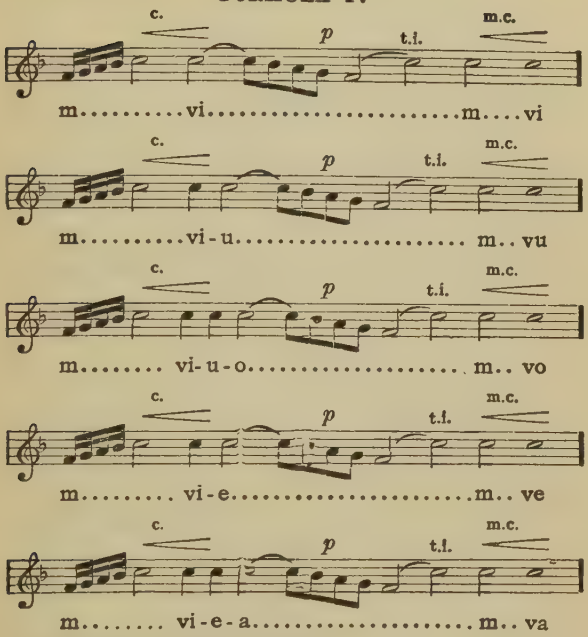
m..... v.... i.....i....m

Having inhaled properly, *hum* rapidly from middle *c* to *g* (for contralto; *f* to *c* for soprano), making a strong attack of the resonant tone on this note; change *m* to *v*, and open on the High Front vowel and sing *softly* down the scale back to *tonic without moving the tip of the tongue from the point of support*, and keeping the vowel-chamber well open; make a clean *portamento* back to *g;* close on *m* to test the adjustment of the vowel tone and the resonant tone. If there is a proper proportion of the two vibrations there will be absolutely no alteration in the quality of the tone as it changes from vowel resonance to the "hum" of resonant tone.

When this perfect adjustment has been secured, repeat the exercise, opening on the vowel after testing the adjustment, which should thus secure a complete vocal note of perfect *timbre*—that is, containing all its vibrations.

Repeat this exercise on each of the primary vowels until each can be sung without altering the proportion of the vibrations.

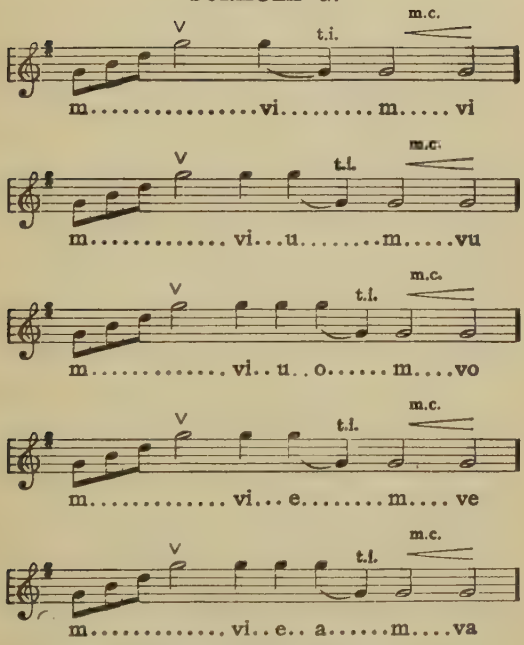
Continue with each vowel up the scale,

FORMULA F.

NOTA BENE.—t.l.=tongue impulse.

semitone by semitone, as high as the vowel can be sung without altering the adjustment of the vibrations.

When, by increasing the breath-support, the pupil is able to sing the vowel in full voice without forcing the fundamental tone or altering the proportion of the vowel resonance and the resonant tone, the strings of a closed upright piano standing in the same room should respond to the singer's voice with the strongest harmonics of each vowel on every note of the scale on which a constant vowel pitch can be maintained.

When perfect adjustment of all the vibrations of the voice has been obtained on the primary vowels through the middle and head-tones as far as *e*, *f*, or *g*, let the student begin the adjustment of the vibrations of the lower tones as follows: "hum" up the arpeggio rapidly from *g* to *g*, making a strong aspirate attack of the resonant tone on the upper note of the octave; open on the High Front vowel; *portamento* down to the octave below, close immediately on *m;* make a strong crescendo with the resonant tone; change *m* to *v*; and

FORMULA G.

Nota Bene.—t.i.=tongue impulse.

open again on the vowel. If the adjustment of the vibrations is maintained on the *portamento*, when the vowel-chamber is opened the second time the vocal note will be enriched and deepened by reflex vibrations giving to the *timbre* of the voice the quality known as "chest resonance."

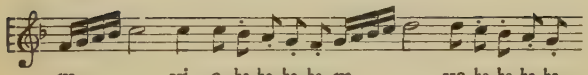
Repeat this exercise, by semitones, down the chromatic scale, as low as the *timbre* can be maintained with a distinct vowel; then repeat on each of the primary vowels as in the other exercises, "placing" each with the High Front vowel. Great care must be taken to keep the lower jaw well relaxed on the lower tones in order that none of the partials of the voice may be lost. When a resonant chest-tone has been secured the formula should be repeated with the opening of the throat-chamber on the final vowel by a forward and downward motion of the *sterno-thyroid* muscle necessary to arouse the lower harmonics of the voice and secure the quality of *sonority*.

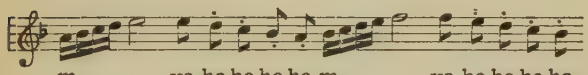
Beginning on *f*, "hum" rapidly up five notes of the scale, making a strong attack of the resonant tone on *c;* change *m* to *v* and open on the High Front vowel; change quickly to the Low Middle vowel; sing down five notes of the scale with a light staccato movement, making a strong aspirate attack of the vowel on each note, as in laughing.

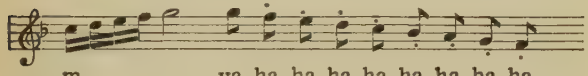
Repeat this exercise, beginning a semitone higher each time until the octave is complete, then laugh down the scale back to *f*.

This exercise not only enables the student to maintain the full *timbre* of the voice in *staccato* singing, but gives a musical, resonant laugh as well.

FORMULA H.


m..... vi - a-ha ha ha ha m..... va-ha ha ha ha


m..... va-ha ha ha ha m..... va-ha ha ha ha

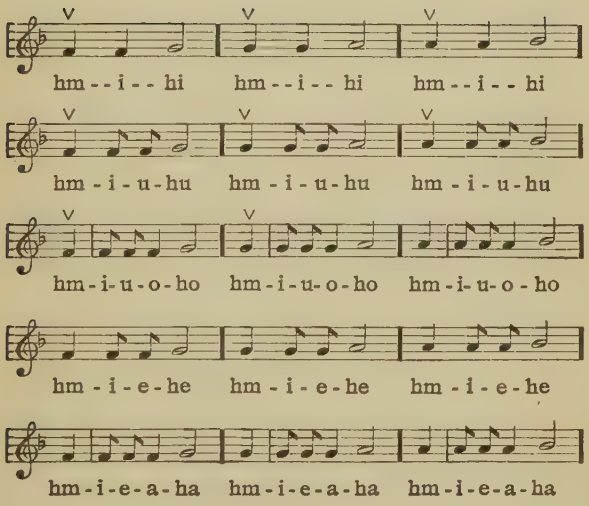

m..... va-ha ha ha ha ha ha ha ha

The student will note that up to this point no complete tone has been made *on an upward progression;* he has been humming up and singing down. In thus "placing" the vowel with the resonant tone he steers safely between the horns of the vocal dilemma—the danger of singing up on the open vowel, or of attacking the fundamental tone on a high pitch, in order to "build the voice downward." Before further progress can be made, however, he must learn to maintain the adjustment of all the vibrations of the voice on an upward progression. For this he will find the following exercises sufficient, provided he has learned, by patient practice of the preceding exercises, to maintain this perfect balance of the vibrations in singing downward.

Make a strong aspirate attack of the resonant tone on *f;* change *m* to *v* and open on the High Front vowel without interfering with the flow of the resonant tone; sing up one semitone, making a strong aspirate attack of the vowel. Continue step by step up the scale as far as the adjustment of all the

FORMULA I.

I.


hm - - i - - hi hm - - i - - hi hm - - i - - hi
hm - i - u - hu hm - i - u - hu hm - i - u - hu
hm - i - u - o - ho hm - i - u - o - ho hm - i - u - o - ho
hm - i - e - he hm - i - e - he hm - i - e - he
hm - i - e - a - ha hm - i - e - a - ha hm - i - e - a - ha

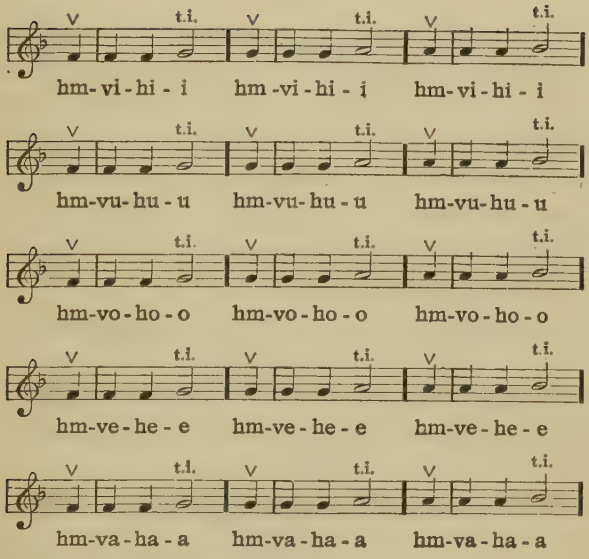
vibrations can be maintained, and repeat on all the primary vowels.

Repeat the exercise, raising the pitch of the fundamental tone on the open vowel. This is done by a slight increase of the muscular tension of the tongue at the *point of resistance* for the vowel. Continue up the scale as before and repeat on the primary vowels.

If this exercise is thoroughly mastered it will enable the singer to make a clear vowel attack without any danger of being betrayed into the pernicious *coup de la glotte.*

FORMULA I.

II.

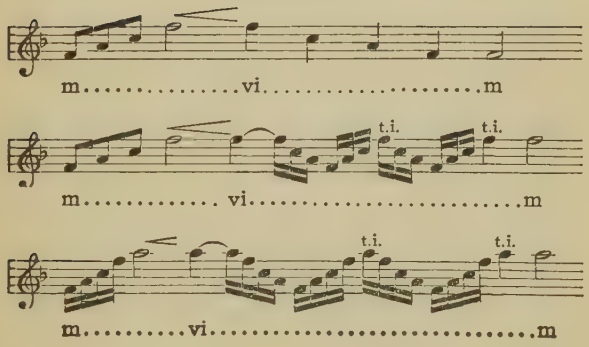


NOTA BENE.—t.i.= tongue impulse.

"Hum" up the arpeggio from *f* to *f*, making a vigorous aspirate attack of the upper note of the octave; change *m* to *v;* open on the High Front vowel; sing down *and up* the arpeggio rapidly several times, taking great care to renew the tongue impulse for the vowel on the upper note each time. Repeat on the primary vowels.

When the movement of the voice through the octave is free, add another note to the arpeggio and repeat as before on the primary vowels. Continue up the scale, as far as the proportion and adjustment of the vibrations can be maintained, on all the primary vowels.

FORMULA J.

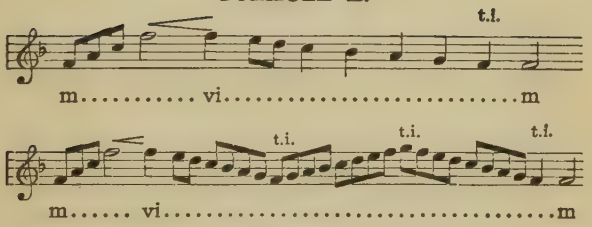


When the student is able to maintain the complete *timbre* of the voice on the arpeggio movements, he should apply the exercises to his practice of scales as follows:

"Hum" up the arpeggio from *f;* open on the High Front vowel and sing down the scale, taking great care not to change the shape of the vowel-chamber by moving the tongue. Repeat singing down *and up* rapidly, as long as the complete *timbre* of the voice can be maintained, *renewing the tongue impulse* on the upper note of the octave, as in the arpeggio work.

Repeat the exercise upward, semitone by semitone, as high as perfect adjustment of the vibrations can be maintained *without any muscular strain on the tongue.*

FORMULA K.



NOTA BENE.—t.l.=tongue impulse.

When the voice moves smoothly through the scales, without any loss of *timbre* or sacrifice of the vowel, the student can begin the following exercises for maintaining a clear vowel resonance in *coloratura* work, first humming the exercises *mezza voce*, taking special care to accent the first note of each group with a strong attack of the resonant tone.

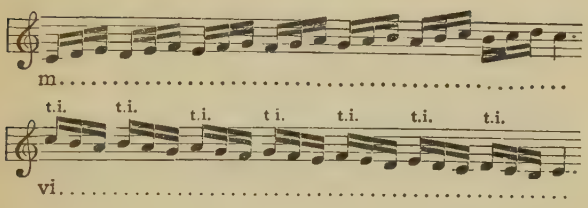
When the voice moves flexibly on the resonant tone, hum the first group up the scale, semitone by semitone, making a strong crescendo on the upper note of the octave; change *m* to *v* and open on the High Front vowel and sing down, taking great care to *renew the tongue impulse for the vowel simultaneously with the voice impulse* on the first note of each group.

Repeat the exercise on the Low Middle vowel ("placing" the same with the High Front vowel, and keeping the jaw well relaxed); continue the movement up the scale as high as the adjustment can be maintained without any muscular strain.

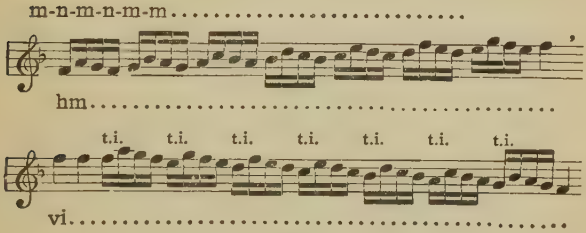
If these exercises are practised faithfully they will not only enable the student to main-

FORMULA L.

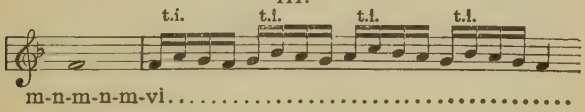
I.



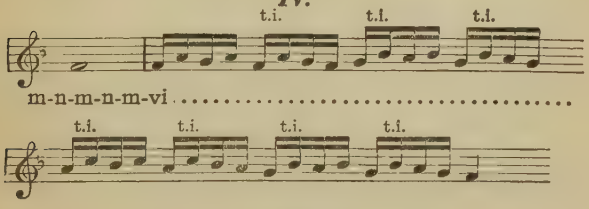
II.



III.



IV.



tain a distinct vowel resonance on the higher notes, but will extend the range and increase the flexibility of the voice as well.

When the tongue has been strengthened to hold the shape of the vowel-chamber so as to maintain *a constant vowel pitch* on different tones sung in rapid succession, it must be trained to change the vowel forms in rapid succession, in order to sing a different vowel on each note, if necessary, without altering the adjustment and proportion of the different vibrations of the voice.

(*a*) "Spin" the resonant tone for a measure on the consonants *m* and *n;* change *m* to *v;* open on the High Front vowel and sing the first group of notes lightly on this resonance; repeat on the High Back, again on High Front; on Low Middle; and close the movement by singing a full measure on the Mid Back vowel.

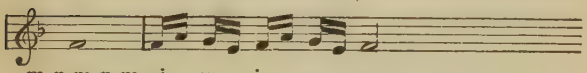
(*b*) Repeat (*a*), changing the vowel resonance on the third note of the group.

(*c*) Repeat, again changing both vowel and tone, on the first note of the group, up a scale of one octave and back.

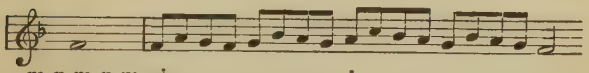
FORMULA M.

I.

II.



III.

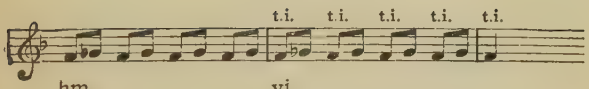


Much of the difficulty experienced by singers in developing a trill is due to lack of attention to the vowel. The failure to renew the impulse of the tongue simultaneously with the voice impulse on every accented note of the trill throws the strain of renewing the vowel vibrations, as well as the vibrations of the tone, on the delicate vocal cords, thus weakening both vowel and tone. Singers will find their trilling much improved by practising the following exercises, by means of which many of the writer's pupils, who were said to "possess" no trill, have acquired one.

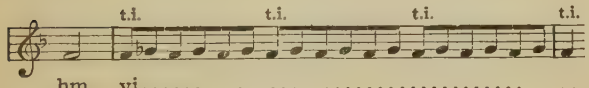
(*a*) "Spin" the resonant tone with *m* and *n* on *f* for one measure; change *m* to *v;* open on the High Front vowel; raise the pitch of the tone one semitone without changing the pitch of the vowel by maintaining a firm pressure of the tongue at the *point of support* and the *point of resistance;* repeat, renewing the vowel impulse on the first note of the group. This exercise should be practised at first very slowly until the movement of the tongue is under perfect control.

FORMULA N.

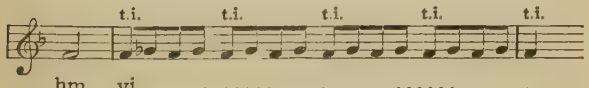
I.



II.



III.



(*b*) Repeat, renewing the tongue impulse on the first and third beat of the measure; and repeat again, renewing the tongue impulse on the first, fourth, seventh, and tenth beats (triplets).

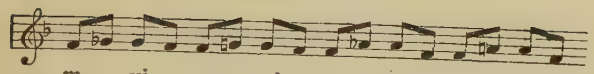
(*c*) Repeat on the High Back and Low Middle vowels as far up the scale as the *timbre* of the voice can be maintained.

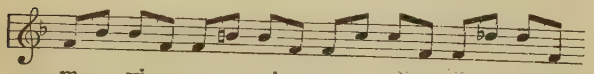
All these formulas should be repeated *in reversed order*, so that the accent of the voice falls on the *higher* note of the trill.

When the movement for the trill has been conquered the student will be ready for practice of wider chromatic intervals.

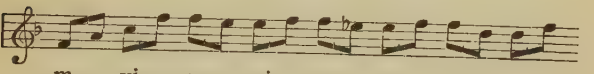
(*a*) Make a strong aspirate attack of the resonant tone on *f;* raise the pitch one semitone; change *m* to *v;* open on the High Front vowel and sing *down* the interval. Repeat, raising the pitch a whole tone; open and sing down as before. Continue thus through the octave, raising the pitch one semitone at each step of the exercise, taking great care to *maintain a constant vowel pitch* by a firm pressure of the tip of the tongue at the point of support.

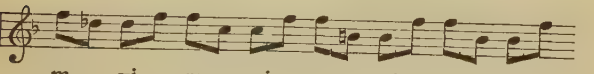
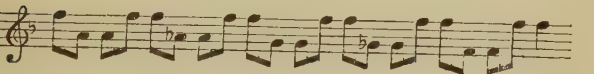
FORMULA 0.


m.... vi.... m.... vi....m.... vi....m.... vi....


m.... vi.... m.... vi....m.... vi....m.... vi....

m... vi... m... vi... m... vi... m... vi... m.


m.... vi.... m.... vi....m.... vi....m.... vi....


m.... vi.... m.... vi....m.... vi....m.... vi....

m.. vi.. m.. vi.. m.. vi.. m.. vi.. m.. vi.. m.

(*b*) Hum up the arpeggio, making a strong attack of the upper note of the octave; hum down one semitone; open on the High Front vowel, and sing *up* the interval. Continue down the octave, increasing the interval one semitone at each step, humming down and singing up.

(*c*) When the movement of the voice can be made through the entire octave with ease, without altering the adjustment and proportion of the vowel and tone vibrations, the student can extend the range of the interval, semitone by semitone, without the humming as far as a clear vowel resonance can be maintained without interfering with the flow of the resonant tone.

XI

ANALYSES OF SONG TEXTS

IN order that the progress of the student of diction may not be delayed by the difficult and delicate task of co-ordinating the processes of articulation to the various forms of the discrete movement of the voice in singing, the analytical study of song texts should be begun as soon as the art of intoning, and the other principles given in Chapter IX, have been mastered.

This may be done, indeed, as soon as the Italian vowels have been placed and harmonized. Whatever the nationality of the student, it is imperative that the work of lyric diction should be begun on the normal tongue positions and the pure and perfect resonances of the Italian vowel gamut. Nor is it necessary that the student should either speak or understand that language before be-

ginning the study of Italian lyric diction. Of course, such knowledge is desirable and of great advantage, *provided* it has been acquired correctly from the phonetic standpoint. On the contrary, if the language be spoken with a foreign accent, especially with the *mixed* resonances peculiar to many English and German vowels, the accomplishment will prove an actual stumbling-block until these faults have been eliminated by correct training of the organs of articulation. The writer has found during many years of experience in teaching singers of various nationalities that, in the case of adults who have not acquired *in childhood* the foreign languages to be sung, the best and quickest results are obtained by first placing and harmonizing the vowels, and *afterward* studying the language with a native teacher.

In the case of the English-speaking student, the Italian resonances especially can be thus acquired without any difficulty, since they constitute, as we have already seen, the basis of our own richer and more complex vowel scheme. This statement, of course,

includes the proviso that the student's English is correctly spoken, with the proper distinction between our own pure and mixed vowels. If he has, however, the careless and deplorable habit of mixing all his vowels, his Italian will retain an English accent until the tongue has been trained to control the delicate tensions necessary to maintain the pure vowel quality and constant vowel pitch characteristic of *all* the Italian resonances, and of a large proportion of our own as well.

As soon as this has been done, let the student select an Italian song, preferably by one of the earlier composers, and make a careful analysis of the text.

First, of course, he will study the thought-content of the words, until he has a clear and definite conception of the poet's idea, the burden of the message to be delivered to the listener. If unfamiliar with the language, this must, of course, be gained through translations, of which at least two should be obtained, one giving the actual literal meaning of the words, and another a more liberal and, if possible, poetic rendering, with the wider

significance of the idioms and figures of speech employed to convey the thought. Only after the text has been thus mastered should the attention be turned to the music, the composer's emotional commentary on the theme, the object of which is to enable the artist to voice the inarticulate and unutterable thoughts which lie hidden in the poet's words. Just here the student, or amateur—even the average artist—is apt to blur his dual performance from its very inception by the mistake of "singing over" both words and music perfunctorily, at sight, to a piano accompaniment.

Fortunate indeed is the student who hears his song first sung by a true artist, to the accompaniment of an orchestra. Failing this, he should try to hear the music played on a violin. If dependent upon an equally tempered instrument, let him first *play* the music over correctly, then whistle or hum the vocal score until familiar with it. Always, of course, with the proviso that *the student knows how to hum correctly*. Better than either whistling or humming is the device of combining the

hum of the resonant tone with the softly buzzing sound obtained from the *v* position of the lips and teeth; provided again that the student understands *how* to arouse the vibrations in the vowel chamber partially without losing those established on the upper stream of the breath through the head and face-mask, according to the instruction given in Chapter IX. *After* a clear mental concept of both words and music has been thus obtained a *technical* analysis of the Italian text should be made by the aid of the classification of the resonances given in the appendix as follows:

Copy the words of the song in a large notebook reserved for this purpose, leaving the space of a line between each line of the text, and spacing the words and syllables amply. Under each vowel write in small letters the initials indicating the position of the tongue necessary to secure and maintain the correct vowel resonances, then proceed as follows:

I. Repeat the words of the first phrase slowly *without any sound*, keeping the attention fixed upon the positions and movements

of the tongue, jaw, and lips, by means of which the size and shape of the vowel chamber are regulated and the consonants articulated.

II. Repeat the same phrase, *whispering* the words slowly and distinctly, keeping the sound well at the front of the mouth and exaggerating the tensions for the vowels and the motions for the consonants.

III. Intone the vowels of the phrase alone, first making an aspirate attack of the resonant tone, and maintaining a continuous flow of the same while the mouth vibrations are being shaped into clear vowel resonances, thus securing the full *timbre* of the voice on each vowel, on a continuous fundamental pitch.

IV. Intone the full phrase, articulating the vowel resonances into words by means of deft and accurate consonant processes without losing the proper proportion and balance of all the vibrations of the voice secured by the previous exercises.

V. Repeat exercise IV, observing the correct *time* value and accents of the music, thus

adjusting the rhythm of the poet's phrase to that of the composer's measures.

Continue thus through the song, phrase by phrase, beginning each with aspirate attack (*hm*) of the resonant tone to secure perfect adjustment of the mouth and head resonances and changing the pitch of the fundamental tone between each phrase, by semitones, through a major third and back, to prevent any fatigue of the vocal cords from intoning continuously.

After these five repetitions of each phrase for the diction processes the singer will find that, incidentally and without conscious effort, both words and music have been "memorized" during this process of co-ordination.

The singer is now prepared to begin the study of the song with regard to artistic vocal execution and the correct *nuances* of tone-color necessary for a full expression and interpretation of the poet's message in the musical terms of the composer—in short, for study of the art of singing proper.

Happy the student whose vocal instructor

is sufficiently alive to the importance of this much-neglected work in lyric diction to insist upon such a preparation for his own artistic labors, and to see that perfect lyric unity in his own work demands that he meet the diction teacher half-way by having such a student sing each phrase of his song through *on the vowels alone*, before attempting to sing the words. Only thus can the perfect coordination of the processes of articulation to the discrete movements of the voice be thoroughly established. With or without the cooperation of the vocal instructor, the singer who has a well-trained kinesthetic faculty can readily make this necessary transition step.

When the student has mastered the principles of lyric diction on a few simple Italian songs, he should apply the same to the study of his native language—presumably, in this case, English, a full classification of which has already been given (see Note XIII). If vocalized from the basis of the Italian vowels on which the English resonances are founded, even the most complex of our mixed and shade

vowels can be sung as artistically and beautifully as either German or French. Take, for example, that peculiarly English vowel, the mixed *u*, as in *muse*. Let the reader pronounce the word first with its basic Italian vowel (the equivalent of the English *oo*, as in *mood*), then repeat with the initial English "glide" from the High Front position (*i* as in *is*), letting the voice linger upon and caress only the deeper-toned *u* resonance. If he has any ear at all for the finer vowel harmonies, which are the soul of the sung word, he will note the subtlety, the grace, and distinction given to the sound by the addition of this preliminary resonance. Of whatever nation, he must admit this vowel to be, when correctly intonated, the most beautiful resonance in any living language.

Finally, in selecting a repertory—of English songs especially, alas—let the singer beware those which, in the words of Spencer, "sin against Science by setting to music ideas which are not emotional enough to prompt musical expression, . . . and by using phrases that have no natural relation to the ideas

expressed even when they are emotional. They are bad because they are untrue, and to say that they are untrue is to say that they are unscientific."

CARO MIO BEN

GIORDANI.

Ca - ro mio ben, cre - di - mi al - men,
lm mb hf-mb mf mf hfn hfn lm mf
(con) (con)

Sen - za di te lan - gui - sce il cor.
hm lm hfn mf lm hb-hfn hm hf lb
(ex)

Il tuo fe - del so - spi - ra o - gnor;
hf hb-mb mf mf mb hfn lm lb lb
(con)

Ces - sa, cru - del, tan - to ri - gor.
hm lm hb mf lm mb hfn lb
(con)

Caro mio ben, etc.

AMARILLI

GIULIO CACCINI.

A - ma - ril - li, mia bel - la,
lm lm hf hfn hf-lm hm lm

Non cre - di, o del mio cor' dol - ce de - si - o,
lb mf hf mb hm hf-mb lb lb hm mf hf mb
(ex)

d'es - ser tu l'a-mor mio?
hm hm hb lm lb hf-mb

Cre - di, lo pur; e se ti - mor t'as - sa - le,
mf hfn mb hb mf mf hf lb lm lm hm
(ex)

du - bi - tar non te va - le.
hb hfn lm lb hf lm hm
(ex)

A - pri - mi il pet - to, e ve - drai
lm hfn hfn hf hm mb mf mf lm-hfn

scrit - to in co - re:
hf mb hf mb hm
(ex)

A - ma - ril - li, A-ma-ril-li,
lm lm hf hfn

A-ma-ril-li è il mio a - mo - re.
hm hf hf-mb lm mb hm
(ex)

CHE FARÒ SENZA EURIDICE?

"Orfeo" (GLUCK).

Che fa - rò sen - za Eu - ri - di - ce?
mf lm lb hm lm mf-hb hfn hfn hm
(ex)

Do - ve an - drò sen - za il mio ben?
mb hm lm lb hm lm hf hf-mb mf
(ex)

Eu - ri - di - ce! O Di - o! Ri-spon-di!
hf-hb hfn hfn hm mb hfn mb hf lb hfn
(ex)

Io son pu - re il tuo fe - de - le.
hf-mb mb hb hm hf hb-mb mf mf hm
(ex) (ex)

Che farò, etc.

Ah! non m'a-van - za più soc-cor - so,
lm lb lm lm lm hf-hb lb lb mb

più spe - ran - za, nè dal mon-do,
hf-hb mf lm lm hm lm lb mb

nè dal ciel.
hm lm hf-hm

FOLK-SONG

W. D. Howells. E. A. MacDowell.

Is it the shrewd Oc - to - ber wind
hfw hfw mm hfw-hb lb mb mm hfw
(ex) (mixed)

Brings the tears in - to her eyes?
hfw mm hfw-mm hf hbw mm lm-hfw
(ex) (r-shade) (ex) (mixed)

Does it blow so strong that she must fetch
mm hfw mb mb lb lf hf mmw hm
(ex)

Her breath in sud - den sighs?
mm hm hfw mmw hm lm-hfw
(mixed)

The sound of his hors - e's feet grows faint,
mm lm-hbw lb hfw lb hm hf mb-hbw hm-hfw
(ex) (mixed) (ex) (mixed) (mixed)

The	Ri - der	has	passed	from	sight;
mm	lm-hfw	mm	lf	lm	lb lm-hfw
(ex)	(mixed)				(mixed)

The	day	dies	out	of	the	crim - son	west,
mm	hm-hfw	lm-hfw	lm-hbw	lb	mm	hfw lb	hm
(ex)	(mixed)	(mixed)	(mixed)				

And	cold -	ly	falls	the	night.
lf	mb-hbw	hfw	lbw	mm	lm-hfw
	(mixed)				(mixed)

She	press - es	her	trem - u - lous	fin - gers	tight
hf	hm	hm mm	hm	hfw-hb hbw hfw mm	lm-hfw
				(mixed)	(mixed)

A - gainst	her	clos - ed	eyes,
mm hm-hfw	mm	mb	hm lm-hfw
(mixed)			(mixed)

And	on	the	lone - some	thresh - old	there
lf	lb	mm mb-hbw	mm	hm	mb-hbw hm-mm
			(ex)		(mixed) (r-shade)

She	cow - ers	down	and	cries.
hf	lm-hbw mm	lm-hbw	lf	lm-hfw
	(mixed)	(mixed)		(mixed)

O FOR THE WINGS OF A DOVE!

MENDELSSOHN.

O	for	the	wings	of	a	dove!
mb	lb	mm	hfw	lb	mm	mm
		(ex)			(ex)	(ex)

Far	a - way,	far	a - way	would	I	rove!
lmw	mm	hm-hfw	lmw	mm hm-hfw	hbw	lm-hfw mb-hbw
		(mixed)		(mixed)		(mixed) (mixed)

In the wil - der - ness build me a nest,
hfw mm hfw mm hm hfw hf mm hm
(ex) (ex)

And re - main there for - ever at rest.
lf hfw hm-hfw hm-mm lb hm-mm lf hm
(ex) (mixed) (r-shade)

THE LASS WITH THE DELICATE AIR

ARNE.

Young Mol - ly, who liv'd at the foot of the hill,
mm lb hfw hb hfw lf mm hbw lb mm hfw
(ex)

Whose fame ev' - ry vir - gin with en - vy
mb hm-hfw hm hfw mm hfw hfw hm hfw
(mixed) (r-shade of hfw)

does fill,
mm hfw
(ex)

Of beau - ty is bless'd with so am - ple a
lb hfw-hb hfw hfw hm hfw mb lf hm mm
(mixed) (muted) (ex)

share,
hm-mm
(r-shade)

Men call her the lass with the de - li - cate air.
hm lbw mm mm lf hfw mm hm hfw hm-hfw hm-mm
(mixed) (r-shade)

One ev' - ning last May, as I tra - vers'd the grove
mm hf hfw lm hm-hfw lf lm-hfw lf mm mm mb-hbw
(mixed) (mixed) (mixed)

In thought-less re - tire - ment, not dream-ing of Love,
hfw lbw hm hfw lm-mm hm lb hf hfw hb mm
(ex) (ex) (r-shade) (ex)

I chanc'd to es - py the gay nymph, I
lm-hfw lm hbw hm lm-hfw mm hm-hfw hfw lm-hfw
(ex) (mixed) (ex) (mixed) (mixed)
de - clare,
hfw hm-mm
(ex) (r-shade)

And re - al - ly she had a most de - li - cate air.
lf hfw lf hfw hf lf mm mb hm hfw hm-hfw hm-mm
(mixed) (r-shade)

By a mur-mur - ing brook, on a green mos - sy
lm-hfw mm mm mm hfw hbw lb mm hf lb hfw
(mixed) (ex) (ex) (ex) (ex)
bed,
hm

A chap-let com-pos - ing the fair one was laid.
mm lf hm lb mb hfw mm hm-mm mm lm hm-hfw
(ex) (ex) (r-shade) (ex) (mixed)

Sur - pris'd and trans-port-ed, I could not for-bear
mmw lm-hfw lf lf lb hm lm-hfw hbw lb lb hm-mm
(ex) (mixed) (mixed) (r-shade)

With rap - ture to gaze on her de - li - cate
hfw lf mmw-mm hbw hm-hfw lb mm hm hf hm-hfw
(r-shade) (mixed) (ex) (mixed)
air.
hm-mm
(r-shade)

A thou - sand times o'er I've re - peat-
mm lm-hfw lf lm-hfw lb-mm lm-hfw hfw hf-hfw
(ex) (mixed) (mixed) (r-shade) (mixed) (mixed)

ed my suit,
hm lm-hfw hfw-hb
(mixed) (mixed)

But still the tor-men-tor af-fects to be mute.
mmw hfw mm lb hm lb lf hm hbw hf hfw-lb
(mixed)

Then tell me, ye swains, who have con-quer'd the fair,
hm hm hf hf hm-hfw mb lf lb mm mm hm-mm
(mixed) (ex) (r-shade) (r-shade)

How to win the dear lass with the de - li-
lm-hbw hbw hfw mm hfw-mm lf hfw mm hm ; hf
(mixed) (ex) (r-shade)

cate air.
hm-hfw hm-mm
(mixed) (r-shade)

ARIETTE OUBLIÉE (II)

VERLAINE-DEBUSSY.

Il pleu - re dans mon cœur
hf hmn hmn lm mb hmn
(ex) (nas) (nas) (ex)

Comme il pleut sur la vil - le.
mbw hf hm hf lf hf hmn
(ex) (cov)

Quelle est cet - te lan - gueur
hm hm hm hmn lm hmn
(nas) (ex)

Qui pé - nè - tre mon cœur?
hfn mfn hm hmn mb hmn
(nas) (ex)

O	bru - it	doux	de	la	plui - e
mb	hf - hfn	hb	hmn	lf	hf-hfn hmn
	(cov)				(cov)

Par	ter - re	et	sur	les	toits!
lmn	hm	hmn	mfn	hf	hm hb-lf
			(ex)	(cov)	(ex)

Pour	un	cœur	qui	s'en - nui - e,	
hb	hmn	hmn	hfn	lm	hf-hfn hmn
	(nas)	(ex)		(nas)	(cov)

O	le	bru-it	de	la	plui - e!
mb	hmn	hf - hfn	hmn	lf	hf-hfn hmn
		(cov)			(cov)

Il	pleu - re	sans	rai - son
hf	hmn hmn	lm hm	mb
	(ex)	(nas)	(nas)

Dans	ce	cœur	qui	s'é - cœu - re.	
lm	hmn	hmn	hfn	mfn	hmn hmn
(nas)		(ex)			(ex)

Quoi,	nul - le	tra - hi - son,			
hb-lf	hf	hmn	mf	hfn	mb
	(cov)				(nas)

Ce	deuil	est	sans	rai - son.	
hm	hm-hf	hm	lm	hm	mb
			(nas)		(nas)

C'est	bien	la	pi - re	pei - ne	
hm	hf-lf	lf	hf	hmn	hm hmn
	(nas)				
	(ex)				

De	ne	sa - voir	pour - quoi,	
hmn	hmn	lf	hb-lf	hb hb-lf
			(ex)	(ex)

Sans a - mour et sans hai - ne,
lm lf hb mf lm hm hmn
(nas) (nas)

Mon cœur a tant de pei - ne.
mb hmn lf lm hmn hm hmn
(ex) (nas)

C'EST L'AMOUR

VICTOR HUGO. J. MASSENET.

O, oui! la terre est belle, et le ciel est su-
mb hb-hf lf hm hm hm mfn hmn hf-hm hm hf
(ex) (cov)

per - be,
hm hmn

Mais quand ton sein pal-pite et quand ton œil
hm lm mb lf lf hf mfn lm mb hmn-hf
(nas) (nas) (nas) (ex) (nas) (nas)

re - luit;
hmn hf-hfn
(cov)

Quand ton pas gra - cieux court si lé - ger sur
lm mb lm lf hf-hmn hb hf mfn mfn hf
(nas) (nas) (cov) (ex) (cov)

l'her - be,
hm hmn

Que le bru-it d'u - ne ly - re est moins doux
hmn hmn hf-hfn hf hmn hfn hmn hm hb-lf hb
(cov) (cov) (nas)

que son bru-it;
hmn mb hf-hfn
(cov)

Quand bril - le sous tes cils comme un feu sous les
lm hf hmn hb hm hfn mbw hmn hmn hb hm
(nas) (nas) (cov)

bran-ches,
lm hmn
(nas)

Ton beau re - gard ter - ni par de lon - gues dou-leurs;
mb mb hmn lf hm hfn lf hmn mb hmn hb hmn
(nas) (nas) (ex)

Quand sur les maux pas-sés tout-à-coup tu te pen-ches,
lm hf hm mb lf mfn hb lf hb hf hmn lm hmn
(nas) (cov) (cov) (nas)

Que tu veux me sou - ri - re et qu'il vient des
hmn hf hmn hmn hb hf hmn mfw hf hf-lf hm
(cov) (cov) (nas)

pleurs:
hmn
(ex)

Ce qui sort à la fois de tant de dou - ces
hmn hfn mbw lf lf hb-lf hmn lm hmn hb hmn
(nas)

cho - ses,
mb hmn

Ce qui de ta beau - té s'ex - ha - le nuit et jour,
hmn hf hmn lf mb mfn hmn lf hfn lf-hf mfn hb
(ex)

Comme un par-fum for - mé du souf - fle de cent
mbw hmn lf hmn mbw mfn hf hb hmn hmn lm
(nas) (nas) (cov) (nas)

ro - ses,
mb hmn

C'est bien plus que la terre et le ciel, c'est
hm hf-lf hf hmn lf hm mfn hmn hf-hm hm
(nas) (cov) (ex)

l'a-mour.
lf hb

DER NUSSBAUM

SCHUMANN.

Es grü - net ein Nuss - baum vor dem Haus,
hm hfw mm lm-hfw hbw lm-hb lb mf lm-hb
(cov) (mixed) (mixed) (mixed)

Duf - tig, luf - tig brei - tet er blätt - rig die
hbw hfw hbw hfw lm-hfw mmn hm hm hfw hf
(mixed) (cov)

Blätter aus.
hm lm-hb
(cov) (mixed)

Viel lieb - li - che Blü - ten ste - hen dran;
hf hf hfw mmn hf mmn mf mmn lm
(cov)

Lin - de Win - de kom - men sie herz-lich zu um - fah'n.
hfw mmn hf mmn lb mmn hf hm hfw hb hbw lm

Es flü - stern je zwei zu zwei ge - paart
hm hf mmn mf lm-hfw hb lm-hfw mmn lmw
(cov) (mixed) (mixed)

Nei - gend beu - gend zier - lich zum Kus-
hf mmn lm-hfw mmn hfw-mmn hfw hbw hbw
(mixed) (mixed)

se die Haüpt - chen zart
mmn hf lb-hfw hm lm
(mixed)

Sie	flū -	stern	von	ei -	nem	Mägd -	lein
hf	hf	mmn	lb	lm-hfw	mmn	hm	lm-hfw
	(cov)			(mixed)		(cov)	(mixed)

Das	dăch -	te	die	Năch -	te	und	Ta -	ge	lang
lm	hm	mmn	hf	hm	mmn	hbw	lm	mmn	lm
	(cov)			(cov)					

Wuss -	te,	ach!	sel -	be	nicht	was.
hbw	mmn	lm	hm	mmn	hfw	lm

Sie	flū -	stern,	sie	flū -	stern
hf	hf	mmn	hf	hf	mmn
	(cov)			(cov)	

Wer	mag	ver -	ste -	hen	so	gar	lei -	se	Weis,
hm	lm	hm	mf	mmn	mb	lm	lm-hfw	mmn	lm-hfw
							(mixed)		(mixed)

Flū -	stern	von	Brāut -	gam	und	näch -	sten	Jahr
hf	mmn	lb	lb-hfw	lf	hbw	hm	mmn	lm
(cov)			(mixed)			(cov)		

Vom	näch -	sten	Jahr.
lb	hm	mmn	lm
	(cov)		

Das	Mägd -	lein	hor -	chet,	es	rauscht	im	Baum
lm	hm	lm-hfw	lb	mmn	hm	lm-hb	hfw	lm-hfw
	(cov)	(mixed)		(ex)		(mixed)		(mixed)

Seh -	nend,	wäh -	nend,	senkt -	es,	lä -	chelnd,
mf	mmn	hm	mmn	hm	hm	hm	mmn
		(cov)				(cov)	

In	Schaf	und	Traum.
hfw	lm	hbw	lm-hfw
			(mixed)

AUS MEINEN GROSSEN SCHMERZEN

HEINE. FRANZ.

Aus mein - en gross - en Schmer - zen
lm-hb lm-hfw mmn mb mmn hm mmn
(mixed) (mixed)

Mach ich die klein - en Lie - der
lm hfw hf lm-hfw mmn hf mmn
(mixed)

Die he - ben ihr kling - end Ge - fie - der
hf mf mmn hfw hfw mmn mmn hfm mn

Und flat - tern nach ihr - em Her - zen
hbw lf mmn lm hfw mmn hm mmn

Sie fand - en den Weg zur Trau - ten
hf lm mmn hm mf hb lm-hb mmn

Doch kom - men sie wie - der und kla - gen
lb lb mmn hf hf mmn hbw lm mmn

Und wol - len nicht sa - gen
hbw lb mmn hfw lm mmn

Was sie im Her - zen schau - en.
lm hf hfw hm mmn lm-hb mmn
(mixed)

KEY TO ABBREVIATIONS

The small letters under the words of the songs indicate the point at which the *intrinsic* muscles of the tongue are tensed to maintain the shape of the vowel chamber, and thus secure a correct and constant vowel character and pitch during emission:

hf = high front	mm = mid middle
mf = mid front	lm = low middle
lf = low front	hb = high back
hm = high middle	mb = mid back

lb = low back

When the tongue is widened or narrowed on any of these positions the change of resonance is indicated by:

n = narrow
w = wide

Other modifications are indicated *below* the line as follows:

cov = covered or modified by lip action
nas = modified by action of veil of the palate
r-shade = modified by articulation of consonant *r* following
mixed = having a secondary resonance or "vanish"
con = contraction of form of spelling
ex = exception

APPENDIX

ENGLISH KEY TO THE ITALIAN VOWEL RESONANCES

Italian	*Tongue Position*	*English*
m*a*dre	(Low Middle)	*a*sk
l*e*tto	(High Middle)	l*e*t
l*e*na	(Mid Front)	l*a*dy
m*i*	(High Front)	m*e*
s*o*le	(Mid Back)	s*o*
n*o*tte	(Low Back)	n*o*t
c*u*ra	(High Back)	c*oo*

The simplicity and uniformity of the Italian pronunciation is due in a large measure to the consistency with which the language has adhered to the Latin rule of giving the vowel its open or "short" sound in closed syllables, and its closed or "long" sound in the open syllables. This is, indeed, the normal form of utterance as regards the action of the organs of articulation in speech, and is one of the reasons why Italian is more easily sung than other languages.

The exceptions to this leading rule are very rare, the most notable being in the case of words in which the syllabication is altered by the omis-

sion of a final vowel; as, *ben'* for *bene*, *almen'* for *al meno*, *son'* for *sono*, etc., which retain the closed or short sound of the originally open syllable, *be*, *me*, *so*, etc. In the case of *r*, however—which opens the sound of the preceding vowel in every language—there is the regular variation, as in *amor'* for *amore*, *fior'* for *fiore*, the Mid Back *o* of the open syllable giving place to the Low Back resonance of *o* in the contracted form.

The singer must of course keep in mind the master rule of spoken Italian that the voice stress falls on the penultimate resonance, as in *pa*ce, *fe*de, ri*al*to, etc. This rule applies also to two or more resonances in a single open syllable, the voice stress being given always to the first in the case of two, or to the second in the case of three vowels occurring in succession, as in l*ui*, D*io*, tu*oi*, mi*ei*, etc.

When this *posa della voce* is shifted from the next to the last to the last syllable it is indicated, in the written vowel, by the grave accent, as in *città*, *perchè*, *così*, *pagherò*, *quassù*, etc., and thus, of course, it gives the more open sound to the vowels *e* and *o*.

A

In singing, the *Low Middle* resonance (*ma-dre—ask*) is given to this vowel in all syllables, open or closed. The sound of the Low Front vowel is heard only in speech, and is, indeed, merely the

effect of the following consonant in slightly opening the vowel in closed syllables, as in *cal*-do, *fat*-ti, etc. This may be readily tested by asking an Italian to pronounce the two words *ma-dre* and *mat-tina* in succession; although, in all probability, he will not recognize any difference himself unless he has studied his own language phonetically, as Italians rarely do—or need to do, indeed—even for singing.

E

This vowel takes the High Middle resonance in the closed syllable, as in *des*-tino, *leg*-ge, etc., and the Mid Front resonance in the open syllable; as in *se*-ra, *ce*-na, etc. In the case of *final* open syllables, however, the more obscure and shorter sound of the High Middle resonance is used, as in credere, in which the close sound of the Mid Front vowel is heard in the first two syllables, but obscured to the High Middle resonance in the shorter *e* of the final, unaccented syllable.

I

A similar but less marked variation of the resonance of the High Front vowel should be carefully observed by singers. By repeating slowly the word *in-ni* the student will note that the narrowing of the tongue at the point of resistance necessary for maintaining the focus of the vibra-

tions in the open syllable gives to the second vowel a closer resonance. This is another point of which the native Italian is usually unconscious in the mechanism of his own speech. It is, however, of vital importance that it be observed by English and German singers, whose tongues are apt to sag to the wider position of the *i* in *is* and *ist*, by association. Thus they sacrifice the subtlety and delicacy of the Italian and French variations of the resonance, even when they do not lose the purity of this sound by adding the "vanish" peculiar to the corresponding English vowel in closed syllables, as in *e*ve, s*ee*d, etc.

O

This vowel follows the master rule of pronunciation, taking the close sound of the Mid Back resonance in open syllables such as curi*o*-sa, n*o*-me, etc., and the more open sound of the Low Back resonance in closed syllables such as *o*c-chi, n*o*t-te, etc.

The sole exception to this regular usage is the variation of the resonance in open syllables from Mid Back to Low Back when preceded by *u*, as in bu*o*-na, vu*o*-le, etc.

U

The resonance of *u* never varies, having always the sound of the High Back vowel, in both open

and closed syllables, as t*u*, m*u*sica, n*u*lla, g*u*ardo, p*u*nto, etc.

ENGLISH KEY TO ITALIAN CONSONANT ARTICULATION

There are certain modes of consonant articulation peculiar to Italian which the English singer must of course carefully observe.

First, with the exception of *h*, which is always silent, every consonant is sounded, with delicacy but with the utmost precision. This rule must be carefully observed, especially in the case of double consonants, the first of which is articulated as the closure of the syllable in which it occurs, while the second is employed to open the sound of the following syllable, as in *bel-la*, *det-to*, etc. In the case of *r*, which is *always* delicately trilled with the tip of the tongue, the trilling movement is repeated for the second consonant, as in te*r-r*a, co*r-r*e-re, etc. For the heavy English tongue accustomed to the silent or vocal final r (ah) of refined English speech, practice of this movement is especially important.

In the Italian articulation of *c* there are certain vagaries which must be carefully observed by the foreigner. It follows the general rule of euphony common to most languages, in taking the *click* peculiar to *k* before the vowels *a*, *o*, and *u*, as in *ca-ro*, *col-le*, *cu-ra*, etc. Before *e* and *i* it

takes the sound of the English *ch* instead of the usual sibilant *s*, as in *pa-ce*, *pic-ci-no*, etc.

The same variation is to be noted in *sc*, which, while given the usual *sk* sound before *a*, *o*, and *u*, as *scala*, *scolare*, *scuola*, etc., has the aspirated sibilant of the English *sh* before *e* and *i*, as in *capisce*, *scienza*, etc.

As the Italian *ch* takes the sound of the English *k*, as *che*, *chi*, etc., we see that the rule of euphony is here simply reversed.

The articulation of *g* varies as in English according to the regular rule, except in the "liquid" combinations *gl* and *gn*, as in *gli*, *signor*, etc., which is perhaps the most difficult lingual feat for the English student of Italian. This sound is best indicated to the eye by the spelling *ly* and *ny*, as *lyi* and *sinyor*. The *y* must, however, be articulated with the proper consonant *movement* of the lower jaw, not with the feebler resonance of the vowel form, as in the English word senior. More emphasis must also be given to the bell-like resonance of the *l* and *n* in order to give to the words the true value and atmosphere of the Italian sounds.

The other consonants are articulated as in English, with certain variations in their values, which may be indicated as follows:

b and *p* as in English.
d and *t* as in English, with point of contact for tip of tongue further to the front (as in *th* without the aspirate).

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v and *f* as in English.
j and *k* do not occur in the language.
l as in English, but with a more forward contact of the tongue and hard palate; greater precision and more resonance.
m and *n* as in English, but with a greater degree of resonance.
q has the sound of *k* as in English.
s as in English.
w, *x*, and *y* do not occur in the language.
z has the sound of the English *tz*, as in *pazienza* (in certain exceptional words containing *zz*, that of *dz*).

NOTES AND REFERENCES

I

The present system of tuning keyed instruments such as the piano and organ is called equal temperament (*temperare*, to tune), because it *claims* to equalize the intervals of the too limited number of keys allowed to the octave into twelve semi-tones, six tones, and three major thirds. It is partially accomplished by putting nearly all the consonances, except the octave, slightly out of tune.

General Thompson, for whom the Enharmonic organ referred to in Chapter V was constructed with the number of digitals necessary to give perfect consonances for scales in all keys, refers to this method of tuning as a "barbarous contrivance for making one sound do duty for many." "If," he continues, "an artist were to take the mean of the profiles in his studio and offer it to all comers on the ground that the differences were small, he would do what is done by the temperers."

II

After the publication of *The Technique of Speech* in 1909 the attention of the writer was called to an article from the pen of Madame Melba in one of the American magazines, in which that artist stated that during the period of her vocal training she took only three short singing-lessons weekly, and practised *vocalizes* proper very sparingly, but worked at diction several hours daily—"*spinning out the tone softly, like a spider's web, while articulating words.*"

This apt and beautiful simile describes more accurately the work in resonance given on pages 269–79 of the volume referred to than the author's own efforts to put the process into words. She repeats the statement here, if not *verbatim* at least with Madame Melba's approval, in order that the student may be impressed with the importance of thus gaining control of the beautifying and sustaining but elusive quality of resonance heard in such perfection in that great singer's wonderful voice.

III

There are perhaps no two words in the English language which in their evolution from a common root have caused more confusion in the mind of the vocal student than *chord* and *cord*.

Derived from the Greek *chorda* (gut), the original word seems to have been first applied to the strings of the lyre, which were fashioned from the intestines of animals, like our English catgut. Later *chord* was used to indicate the combinations of tones produced by musical instruments; the word *cord*, without the *h*, retaining the original singification of string, band, rope, or tendon. The confusion which resulted from interchangeable use of the two spellings of the word has been worse confounded by the application of the form *chord* to the vocal bands by such authorities as Dr. Ellis in his translation of the work of Helmholtz, to which reference has already been made.

The present writer follows the present generally accepted usage of *chord* for combinations of tones only, or its figurative applications, as a "color chord" for a combination of colors or shades.

The form *cord* is used when reference is made to the vocal bands in the larynx; or to differentiate the fundamental sound produced by these "cords" from the other tones aroused by it in the resonators above the larynx. For example, this fundamental or *cord-tone*, together with

the vowel tone made in the mouth, and the resonant tone made in the face-mask, are referred to as the three primary tones or "triad" of the "voice *chord*," while the sworls of vibration producing them are described as a "three-fold *cord*."

IV

The terms *kinaesthesis*, or *kinaesthesia*, and *kinaesthetic* for the sense of muscular effort accompanying a voluntary movement of any part of the body seem to have been first employed by the French psychologist, Bastian. In *The Brain as an Organ of Mind* he says: "*We may speak of a sense of movement as a separate endowment, or in one word kinaesthesia. To speak of a kinaesthetic center will certainly be found more convenient than to speak of a sense of movement center.*" For "convenience" sake, the English-speaking public have already universally adopted the kindred word kinematograph, or "cinema," for a moving-picture show. It is to be hoped that students of diction will be permitted the same convenience of replacing the cumbrous phrase "sense of muscular movement" by the scientific, illuminating, and melodious term *kinaesthetic faculty*—reformed, if the S. S. B. and the public so agree, into "Cinesthetic" (though why the upright, consistent, and uncompromising *k* should be abolished in favor of its misleading rival, the capricious, fluctuating, and characterless *c*, is one of the points in the work of our much-needed spelling reform which the present writer has not been able to grasp).

V

"There are hardly any sensory nerve-endings in the vocal cords and muscles of the larynx. . . . Those that are seen in the deeper structures of the cords and the adjacent parts mainly proceed to the mucous glands. This fact, which I have ascertained by numerous careful

examinations, is in accordance with the fact that there are no conscious kinaesthetic impressions of alterations of positions and tensions of the vocal cords. A comparatively microscopic examination of the tip of the tongue and lips shows a remarkable difference, for these structures are beset with innumerable sensory nerves, whereby every slightest alteration of tension and minute variations in degrees of pressure of the covering skin is associated with messages thereon to the brain."—Dr. F. W. MOTT, in *The Brain and the Voice* (Harper & Brothers).

VI

"Ordinary breathing is an automatic act governed by the respiratory center in the medulla. . . . Voluntary costal breathing such as is employed in singing is of cerebral origin, and controlled by centers on the opposite side of the brain, the impulses being sent down to the respective centers for the associated movements of the muscles of articulation, phonation, and breathing in the same way as they are sent to the centers for the movements of the arm or leg. With voluntary breathing the respiratory center in the medulla has nothing to do. It is in fact out of gear or inhibited for the time being so that the impulses pass it by."—HUGHLINGS JACKSON.

VII

(*a* & *b*)

(*a*) "Helmholtz," writes his English translator, Dr. Ellis, "first discovered the real nature of musical sounds, the real basis on which the great superstructure of modern music had been raised, by a mere rule of thumb." The gist of this now generally accepted principle of resonance is that a musical tone is not a simple but a compound sound, the *timbre* or musical quality of which depends on the number and relative strength of its partial simple tones.

(*b*) Stated briefly, the Willis-Hermann theory of vowel resonance is that the vibrations made in the mouth, although aroused by the fundamental tone made by the vocal cords, become independent tones, the pitch and character of which depend solely upon the size and shape of the mouth resonator.

If, as Helmholtz claimed, the vowel were merely one of the harmonics of the cord-tone, it would have a pitch relative to that tone. Whereas the most superficial study of the whispered resonances shows that the vowel tone is sometimes *inharmonic* to the fundamental sound which arouses it.

Helmholtz himself states that "something like the sound of the vowel will be heard if we only tap against the teeth with a little rod, and set the cavity of the mouth in the position required for the different vowels." He also admits that Willis's theory "is certainly not a great way from the truth." Had he lived to see the records of the inharmonic and harmonic vowel analyses made by Dr. Scripture along similar lines, the great physicist would have been the first to proclaim the advance made by this scientist toward the goal of the truth about speech.

VIII

As germane to this subject, singers and actors would do well to acquaint themselves with the important work being done along these lines by M. Jacques Dalcroze in the development of the sense of rhythm; and in *respiratory re-education* by Mr. Matthias Alexander, of London.

IX

For the deplorable business of putting the singer's delicate vocal lyre into accord with the equally tempered scale of the keyed instruments of the present day, Dr. Aiken offers an ingeniously constructed *Resonator Scale*

founded on the pitches of the whispered vowels. The benefit to be derived from any exercise based on the mouth resonances depends, of course, upon the student's ability to obtain and maintain a correct and constant vowel pitch. The extreme difficulty of this delicate process was admitted by Professor Helmholtz himself, while the English translator of his work, the distinguished phonetician, Dr. J. A. Ellis, confessed that after thirteen years' practice he had failed to identify the pitches of his own whispered vowels. In any case, the fact most clearly demonstrated by experiments with the whispered resonances is that the character and pitch of the vowel tone proper are regulated by the shape and size of the mouth cavity or vowel-chamber. Hence, even those singers who have the ears to hear and the patience to capture these subtle and elusive resonances will find that any benefit to be derived from practice of the whispered vowels will be in exact proportion to their control of the organs of articulation, through the sense of muscular movement.

X

If a bell is cast true in pitch, as very rarely happens, it is said to have a "virgin peal." The process of tuning a bell is described as follows by Tyack in his interesting *Book About Bells* (page 28):

"There is a note struck out direct by the clapper from the sound-bow. . . . If the pitch of the bell is referred to it is this tone to which reference is made. But as the vibrations of the stroke set the whole mass of metal throbbing, the following notes are also sounded. At one-eighth of the height of the bell above the brim, a third; at three-quarters of the height, a fifth; at the shoulder the chord of the bell is completed by the octave. Besides, there is also developed from them the 'hum note,' as it is called, consisting of the octave below the fundamental."

XI

In his experiments with the vowel resonances Helmholtz found the (Italian) vowel *u* (English equivalent of *oo* in *woo*) to be almost devoid of harmonics. Taking *b* as the prime, he could identify in his own baritone voice only one of these upper partial tones *b*. As a natural result, the vocal profession, having accepted his work as the general standard on the subject of resonance, have made little effort to secure tonal effects with this vowel.

Let the singer note, however, that this statement was based on the fact, pointed out by Dr. Ellis in a footnote to the English translation of *Sensations of Tone*, that these experiments were made with the tongue low and flat in the mouth. Let us say, rather, with an *effort* to hold the tongue in that unnatural position. Any singer who has gained the slightest sense of movement in its various phases of tension, change of position, etc., in the organs of speech, finds at once that it is *physically* impossible to sing or articulate *u* at all with the tongue low and flat. But at that time very little attention had been paid to the action of the tongue, except by Dr. Bell in his work on *Visible Speech for Deaf Mutes*. It was the generally accepted theory among vocalists that all the Back vowels —or the "darker" vowels, as they were vaguely termed— were shaped by the lips alone. The fact is that the *shape* of the mouth resonator, upon which the character of the vowel depends, is regulated by the position of the tongue; the action of the lips in rounding the orifice merely modifies the *pitch* of the vowel tone. Any singer who has gained control of the vowel resonances through proper action of the tongue can readily demonstrate these facts by delabializing the resonance of *u* while intoning that vowel. He will learn thus that his ability to sing *u* distinctly on high notes—or on *any* note with tonal beauty— depends entirely on his ability to maintain with ease the

High Back position of the tongue. When he is able to do this by tension of the *intrinsic* muscle alone, thus freeing the larynx of all muscular strain, he will find that *u* is as rich in harmonics, on the range of tones rendered possible by its low mouth *pitch*, as any other vowel—except *a* alone.

XII

Of the vital importance, even to a great vocal artist, of establishing a correct *kinesthesis* of the organs of articulation for singing one's native language, we have a remarkable illustration in the following coincidence noted by one of our most discriminating musical critics, in reporting a concert recently given in New York, at which a scene from *Die Walküre* was sung in English. The soprano was a famous *English-speaking* prima donna who has long been recognized as one of the most successful interpreters of difficult Wagnerian rôles, yet the critic states that "it was practically impossible to understand more than a few stray words projected into the auditorium." He adds that the singer's voice was in fine condition and the orchestral accompaniment not unduly loud, and proceeds to contrast the performance with a brilliant *tour de force* in the singing of English songs by a noted foreign tenor, "whose knowledge of spoken English is of the slenderest," and who had "to learn the words he was going to sing by rote." In the very fact that he *had* to learn the words "by rote" lies the simple solution of the mystery which here, as in the performance of Mr. Converse's "Pipe of Desire," seems to have darkened the public mind in regard to the singing of opera in English. Madame ——, having learned her own language, as all children do, *by ear*, had not conscious control of *the movements of her organs of articulation* in English speech, such as she had acquired in learning German by study of the structure of that language, hence *she was not aware* that

she was not conveying the words to her audience as she heard, or thought she heard them herself; whereas Signor ——, having no habitual ear-control of the language, was obliged to acquire *kinesthetic* control of the English words —through *the sense of movement* of the tongue, lips, and jaw, by means of which alone words can be made intelligible to a large audience, especially in dramatic and "coloratura" singing.

XIII

See *The Technique of Speech*, Part Two, Chapter I. The tongue positions of the German and French vowel resonances are also given in the Vowel Tables in that work. A fuller classification of these resonances will be given later in two works now in preparation, with the cooperation of native teachers of those languages, under the titles, "A Short Course in German (*and* in French) Lyric Diction for Singers."

XIV

If the tongue position for the High Back (*u—oo* in moon) vowel is incorrect, or the muscular tension weak at the point of resistance, this resonance will be too nasal and without brilliancy or beauty. This defect would of course be exaggerated by focusing the vowel with *m* in humming. Therefore, until the intrinsic muscles are properly strengthened it is better for singers, sopranos especially, to substitute *v* for *m* in the resonance exercises for practice of this vowel. For the same reason the device of merging the "hum" of *m* into the "buzz" of *v* before opening the vowel chamber in the lyric formulas should be carefully observed on this vowel if not on all.

XV

Since this manuscript went to press a second gramophone record has been made for the writer by the courtesy of Mr. Victor Biegel of London (formerly of New York), showing a variation of this phenomenon. Certain of the upper partial harmonic tones are sounded successively with *different* vowels.

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